PROGRAMME OF STUDIES
FOR
THE INTERMEDIATE SCHOOL
(GRADES VII, VIII, AND IX)

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PROGRAMME OF STUDIES

FOR

THE INTERMEDIATE SCHOOL

(Grades VII, VIII, and IX)

AND

DEPARTMENTAL REGULATIONS

RELATING TO

THE GRADE IX EXAMINATION

AUTHORIZED BY THE DEPARTMENT OF EDUCATION

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GUIDANCE

Since the first printing of this Programme in 1935, educationists everywhere have been giving a great deal of thought to the problems and procedure of Guidance. In the revised Programme of Studies for the High School, Vocations and Guidance appears as one of the listed courses of instruction. As a school function, however, Guidance involves much more than instruction about vocations. It is really a service offered by the school for the purpose of helping students plan their school programme in accordance with their aptitudes and vocational prospects. Guidance includes not only vocational guidance and educational guidance but also personality guidance. In other words, it is the proper function of the school to counsel the pupil throughout all the stages of his growth and development from beginner to adult citizen in a democratic society.

Although nothing has been set out in this Programme with respect to procedures for Guidance, the Department will shortly provide all principals of intermediate schools with a bulletin showing the possibilities of this service. In the meantime, it is urged that every principal organize his school time-schedule in such a way that regular periods are reserved for pupil counselling. During these periods, the principal and other members of his staff, acting as Guidance officers, will have time for regular personal interviews with the pupils.

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The Programme of Studies for the Intermediate School

Introduction.—Education for Democracy.

Many pupils complete their education as citizens in the Intermediate School, and all complete there the period of compulsory school attendance. There is a special connection, therefore, between the Programme of the Intermediate School and the subsistence of democracy.

Education for the individual is a process of controlled development within a social matrix. All human beings learn by experience, but experience that is truly educative must be guided and controlled. The main advantage of education is economy of time and effort in learning.

Writers on education make a practice of setting forth many aims of education. In reality, there are as many aims of education in any given society as there are patterns of behaviour in that society. Every culture pattern is a legitimate aim of education in some society. Some aims, however, are more important than others at a given stage of the learner's development. Some aims, moreover, are so important at all stages that they cannot safely be left to haphazard or unduly time-consuming modes of learning. Schools were established in the first instance to facilitate the learning of things which must be learned anyway sooner or later, but which can be learned more economically and expeditiously through the specialized procedures of formal instruction than in any other way. In pioneer days it was the main function of schools to inculcate the three R's, because this was the only educative function that could not be performed equally well by other social institutions such as the home and the church. Through the change from a simple agrarian to a complex industrialized economy, the pattern of society and social relationships has become exceedingly intricate, with the result that the schools are now called upon to do many other things than merely to train for literacy. The schools of today have been compelled through economic and social developments to take over, in a large measure, the educative functions of other social institutions. Schools now provide a social environment for the learner in which he must react to social situations. The learner develops his capacities as an individual. He also acquires, through the attitudes and relationships induced by social behaviour, a personality that reaches out and enfolds society. The learner is part of society, and society becomes part of the learner.

The dominant purpose of education, embracing its collective aims, is now as ever the transmission of social culture from one generation to the next. Education secures social stability and solidarity, and at the same time provides for social progress. Culture is the product of two factors; co-operation and intelligence. Education will therefore make use of certain integrating studies, such as language, literature, and the so called social studies; and also of such studies as mathematics and science, which exemplify

the technique of intelligence. In a democratic society, it is the special and indispensable task of education to dispel ignorance and obscurantism with respect to the economic and social realities, and to arouse the sense of social and civic responsibility. The educational programme of such a society will facilitate social progress by stressing the importance of problem-solving, of thinking that is free from prejudice or emotion, and of open-minded discussion.

In general, one may say that the following educational trends of the present day will be found in the up-to-date school programme:

1. A broad perspective in education, with recognition not only of knowledge, but also of skills, habits, appreciations, attitudes and ideals as valid objectives. Training for literacy is not enough. The traditional view that education is book-learning still prevails, however, in socially backward communities.
2. A reaction against the mechanized routine of formal instruction, with the consequent adoption of project or enterprise procedures, and the substitution of pupil for teacher activity.
3. Recognition in the programme of training for personal and social efficiency, emotional control, and integration of personality.
4. General acceptance of the principle that the purpose of education is fundamentally social, and that an understanding of the social environment is quite as necessary as an understanding of the physical environment.
5. Belief in the ideals of democracy, and in the possibility of maintaining them through education.

The General Aim of the Intermediate School.

The Intermediate School is a school for pupils of the "between ages"—pupils from eleven to fifteen years of age. It offers a distinctive programme of studies and activities specially suited to pupils who have attained the status of early adolescence. Like the elementary school, it represents an attempt to adjust the school programme and environment to the needs of an age group. Like the high school, it offers a programme of liberal-cultured studies, but with the difference that its programme is not primarily concerned with preparation for advanced academic instruction.

It is a difficult matter for most adolescents to make a wise choice from the adult occupations. Some will later go to the farm; some will go into the trades, some into business; some will find clerical or civil service positions; and some will enter the professions. But the intermediate school cannot segregate these groups. It must offer a sound "core" of instruction that is of value to all pupils, and, by way of enriching the programme, make provision for individual interests and aptitudes through elective and more or less exploratory courses. The intermediate school must be a preparatory school for pupils who will proceed to the high school; but at the same time it must serve as a "finishing school" for pupils who, for one reason or another, are unable to advance beyond Grade IX.

Many pupils who have no aptitude for academic training drop out of Grade VII or VIII with a sense of inadequacy and failure, when they could still profit from further education if it were of a kind suited to their needs. It is the proper function of the intermediate school to offer a programme that will appeal to all pupils of the adolescent group; a programme that is complete in itself and valuable in its own right, without regard to preparation for the high school; a programme that will, in effect, enable pupils who leave school to do so with a sense of accomplishment.

The intermediate school must accept responsibility for completing the education of many young citizens. It should, therefore, inculcate loyalty to the democratic ideal, and exemplify in its programme, procedures and government, the value and efficacy of that ideal. It should continue the programme, begun in the elementary school, of teaching the pupil how to examine both sides of a question, how and where to find facts, and how to use the evidence of authorities in reaching a conclusion. It should preserve and foster the spirit of personal freedom, evoked in the elementary school by the enterprise procedure.

Distinctive Features of the Intermediate School.

Under the most favourable conditions, the Alberta Intermediate School will be a separate unit in a 6-3-3 organization of grades, housed in a separate building containing a special plant. It will offer departmentalized instruction in all of the major fields of study, and throughout the complete range of optional subjects. Its experienced and well-trained staff will consist of specialists whose academic preparation has in all cases reached the level of university graduation. Its classroom projects, assemblies, and social and extra-curricular activities will be segregated from those of either the elementary or the high school.

With conditions as they are, however, it is not to be expected that a shift can be made to the new type of organization in any but urban schools. In Edmonton and in Calgary there are facilities for departmentalized instruction, and for a fairly complete offering of optional subjects. Yet the 9-3 and 6-6 types of organization will not be unusual in the cities and larger towns. In many three-room or four-room schools, the intermediate school will be little more than a group of pupils in Grades VII, VIII and IX in one room under a single teacher. In two-room schools, it may not be possible even to assemble Grades VII, VIII and IX in one group. Not infrequently, Grade IX will be associated with the high school grades.

Nevertheless, the separate and complete intermediate school is the goal towards which we should work. This school will have the following distinctive features; a programme that combines a diversified curriculum with some of the social activities of daily life; teaching procedure and class management appropriate to adolescence; educational and vocational guidance; and a special plant and equipment.

1. The curriculum will consist of a "core," supplemented with elective or optional subjects. The core should include some of the traditional "academic" subjects, but the number of these to be included is still an open question. When all of the major fields of knowledge are represented in the core, two procedures are possible:

(a) To organize classes on the "double-track" plan, with provision for both a normal and a rapid rate of progress. This plan is used in the junior high schools of the city of New York.

(b) To offer, as is the practice in some other large American schools, "general" or "survey" courses—attenuated or diluted courses for pupils going no farther in school than Grade IX, and enriched courses for those proceeding to high school. On the other hand, many schools have reduced the number of core subjects to three; namely: English, Social Studies, and Health Education. It is conceded, however, that most adolescent pupils can profit from instruction in the traditional subjects if the material is properly selected for their instructional level, and is organized in short, simple units, presented in a practical setting. In any event, the core should include a sound training in the fundamentals of oral and written English; a more or less comprehensive view of the world of today, through social studies; and the rudiments of science in everyday life, together with the foundation in science for health rules and physical recreation. As an enrichment, there may be added the practical application of useful concepts in mathematics, and some knowledge of the technique of science and the great scientific discoveries.

The elective and optional courses will be of *three kinds:*

(a) Those designed to develop *cultural appreciation,* and to train for leisure-time hobbies and avocational pursuits. Amongst these will be courses in music, art, craftwork and dramatics, involving participation in clubs, plays, and the school band or orchestra.

(b) *Exploratory courses;* such as courses in general shop, commercial and industrial art, home economics, typewriting and bookkeeping. These courses will explore the personal resources of the pupils through suitable and adequate activation, intelligent selection, and experimental direction.

(c) Prevocational courses, similar to those listed in the preceding paragraph, but more intensive and extensive. These courses can be specially adapted to the needs of pupils whose educational limit will be reached at or below the level of Grade IX.

The programme should include, besides the curriculum, a full list of avocational, social, recreational, sports and pupil government activities; such as will develop social co-operation and wholesome social attitudes.

2. The teaching procedures, methods of discipline, and administrative control in the intermediate school must be adapted to the peculiar mental, emotional and physical needs of adolescent pupils. The teachers should be experts in the psychology of adolescence. Teaching procedures should also be adjusted to differences in mentality, special aptitudes, personality and physique. Dull pupils do not profit from sustained instruction. They require short and simple

units of work, with an obvious goal always in evidence. Attention should also be given to special aptitudes, and to differences in personality and physique. Sound methods of diagnosis should be employed, leading to appropriate remedial measures, and educational or vocational guidance. Promotion within the intermediate school should be more or less casual, determined less by rigid requirements than by the special needs of the pupils concerned. Promotion tests and examinations should be internal.

3. The special plant and equipment of the intermediate school should include classroom libraries and committee rooms, a general library and reading room, an auditorium and stage for assemblies and dramatics, a gymnasium, properly equipped shops and laboratories, typewriting rooms, and special rooms for art, craftwork, sewing and home economics.

THE SCHEME OF SUBJECTS AND TIME ALLOTMENT

Grades VII and VIII

COMPULSORY SUBJECTS:	Time Allotment (in periods per week)
English	5
Social Studies	5
Health and Physical Education	3-4
Mathematics	5
General Science	3
Music	2
Art (*either* in Grade VII *or* Grade VIII)	2
Additional Requirements:	
Library or Remedial English	3
Supervised Study	5
Periods per week required	31 (32) or 33 (34)

OPTIONAL SUBJECTS (one or two to be chosen):	
Dramatics	2-4
Farm and Home Accounting	2-3
Typewriting	2-3
General Shop	2-4
Home Economics	2-4
Periods per week available for optional subjects	7 (6) or 9 (8)

DIRECTIONS.

1. The school day comprises eight class periods, of which one must be a study period.

2. Art is required either in Grade VII or Grade VIII. If Art is not offered in Grade VII, the number of periods per week required in Grade VII for compulsory subjects, library or remedial English, and supervised study is 31 or 32, according to the number of periods given to Health and Physical Education. If Art is offered in Grade VII, the corresponding numbers are 33 and 34. A similar statement will apply for Grade VIII.

3. One of the optional subjects listed for Grades VII and VIII may be offered in Grade VII, and two in Grade VIII; but in either case, only with the approval of an inspector of schools, which will depend on the amount of time available for instruction, the equipment, and the qualifications of the teacher or teachers.

4. The number of periods per week available, with the inspector's approval, for optional subjects will be 6, 7, 8 or 9; that is to say, the difference between 40 and the number of required periods, as explained in No. 2 above.

5. Special qualifications are required for teaching the following subjects of Grades VII and VIII: Dramatics, General Shop, Home Economics and Typewriting. The minimum standard of such qualifications for each subject is the Interim Junior Certificate. No special qualifications are required for the teaching of Music in Grade VII or Grade VIII.

Grade IX

Compulsory Subjects:	Time Allotment (in periods per week)
English	5
Social Studies	5
Health and Physical Education	3-4
Mathematics	5
General Science	5
Additional Requirement:	
Supervised Study	5
Periods per week required	28 or 29
Optional Subjects (three to be chosen):	
Art	2-4
Dramatics	2-4
Music	2-4
Community Economics	2-4
Typewriting	2-4
Oral French	2-4
General Shop	4
Home Economics	4
Periods per week available for Optional Subjects	11 or 12

DIRECTIONS.

1. The Department of Education expects that in one-teacher rural schools instruction will be offered in Grades I to VIII. In these schools the Department will require that any instruction in grades above the eighth have the approval of an inspector of schools.

2. The school day comprises eight class periods, of which one must be a study period.

3. The Grade IX programme comprises five compulsory subjects and a number of optional subjects of which any three will be sufficient to complete the Grade IX requirements.

   In large schools a considerable range of choice will be given to the individual pupils; but in small schools or small classes the qualifications of the teacher, the equipment and facilities of the school, and the amount of time available for instruction will be determining factors.

4. Special qualifications are required for teaching the following subjects of Grade IX: Music, Dramatics, General Shop, Home Economics and Typewriting. The minimum standard of such qualifications for each subject is the Interim Junior Certificate.

   The Department will not grant standing in optional subjects to pupils whose teacher does not hold approved qualifications.

5. Twelve periods a week will be available to each Grade IX pupil for instruction in optional subjects. Not more than four periods a week, or fewer than two, is to be given to any one optional subject. General Shop or Home Economics will each require half a day per week.

6. **The Department of Education will, where conditions warrant, authorize urban school boards to offer shop courses in place of one or more of the Grade IX options.**

General Directions Respecting the Programme

1. The Alberta programme is a protest against formal methods of instruction and rigidly prescriptive instructional materials. The *course outlines are suggestive, not prescriptive.* Teachers may find it necessary or expedient to depart from the mode of treatment set forth in a course outline, or to reorganize the content in a different order or in units other than those appearing in the programme.

   Several of the course outlines contain more material than the teacher can cover in one year with an average class. Those who attempt to "teach" all of this material *in extenso* without regard to circumstances will find the results disappointing. Better results will come from a judicious selection of material adapted to the abilities of the class.

2. It will be seen that the time schedule provides not only for periods of class instruction, but also for library periods, periods for remedial work, and periods for supervised study. *The schedule is designed to prevent the over loading of the daily programme of instruction.* It allows the pupils a certain amount of free time every day, and gives to individual pupils in need of remedial instruction an opportunity to get it. It also finds a place for pupil activity as well as teacher activity.

3. For Division I and Division II of the Elementary School Programme, the principle has been adopted that grade designations do not serve as a basis for promotion, but merely to denote successive levels of attainment in different subjects of the curriculum. Within a division, pupils are taught as a single group, with due attention, of course, to the need for individual or remedial instruction in certain cases. Within a division promotion is by subject rather than by grade.

   To a large extent the same principle may be applied in the Intermediate School. *Pupils of Grades VII, VIII and IX who occupy the same classroom may, in so far as the more advanced character of the instruction permits, be taught as a single group.* Here promotion by subject will be more advantageous than promotion by grade. Promotion from Grade VII to Grade VIII or from Grade VIII to Grade IX will be a matter of secondary importance; for it will be almost entirely in the hands of the teacher, who may combine classes, or group selected individuals, as good management may require.

   The course outlines encourage the combining of grades, as well as the use of flexible standards for promotion. For several of the optional subjects, and for English Literature, Health and Physical Education, and Music, it will be possible to combine Grades VII, VIII and IX. For Art, Social Studies and General Science, Grades VII and VIII may be combined. On the other hand, separate classes, or even individual instruction, will usually be required for oral and written English, and for Mathematics.

The intermediate school programme should therefore be a great boon to teachers and pupils in the ungraded school. Both will enjoy a greater measure of freedom than was possible under the old programme.

4. With more free time on the programme, *pupils should be assigned only a small amount of homework.* Homework, in fact, is inimical to the spirit and genius of the intermediate school. It belongs more properly to the "academic grind" of the high school.

   Remedial study, and free reading or other self-imposed tasks, may be completed at home. But lengthy written exercises, or difficult problems in mathematics or science, should not be assigned as homework.

Tests and Examinations

There can be no doubt that faulty techniques of testing and examining are in a large measure responsible for the aridity of school courses and the barrenness of their results. Naturally the type of examination determines the type of teaching procedure. The prevailing type of examination puts a premium on the reproduction of memorized subject-matter. It does not test for the realization of professed objectives. As stated in the Programme of Studies for the elementary School, the pupil's learning should eventuate in the following desirable outcomes; knowledge, with insight and understanding; habits; skills; interests and applications; attitudes; and ideals. It is the business of examiners to test for these outcomes.

The Department of Education conducts no tests or examinations below the level of Grade IX. Within this range, testing is left to teachers, principals, or superintendents. In the intermediate school there is a place for the teacher's testing programme. Assimilation and mastery tests are important instructional tools, which should be constructed for the diagnosis of pupil weakness in order that the appropriate remedial instruction may follow. Testing should not be left until the end of the school term.

The Department of Education will conduct annually a Grade IX Examination. This examination will be in charge of the High School Entrance Examination Board. *The purposes of the Grade IX Examination are the following*:

1. To serve as a general check-up of a pupil's intermediate school achievement.
2. To test a pupil's mastery of language skills, his power to manipulate some of the fundamental concepts of mathematics, and his grasp of general ideas in science and social studies.
3. To furnish data respecting his mental capacity and special aptitudes, to be used for educational guidance.
4. To provide a basis for promotion to the High School.

The following general remarks may be added respecting the character of the *Grade IX Examination*:

1. To a considerable extent, it will be of the *"objective" type.* The constituent question papers will be prepared by a committee of test and subject-matter specialists.

2. *The valuing and grading of the answer papers will be done under direct instructions from the Board. Statistical* techniques will be employed, and other precautions will be taken to keep the examination on a scientific basis.

3. It will be the endeavour of the Board to make the examination of such a character that it will defeat "cramming," and offer no encouragement to teaching that is aimed directly at examination results. In other words, *the examination will require the adjustment of teaching procedures to the objectives of the programme.*

Regulations Governing the Grade IX Examinations

1. The pupils' status and achievements on the Grade IX Examination will be graded by a High School Entrance Examination Board according to certain standards of quality; and on this basis pupils will be directed to appropriate courses of the high school programme. The fee for the Grade IX Examination is $3.00.

2. (a) The Grade IX Examination will comprise *four* tests: one in *English,* one in *Mathematics,* one in *Social Studies,* and one in *General Science* and *Health Education.*

   (b) The tests in *English* and *Mathematics,* and, if necessary, in either or both of the remaining subjects, will consist of *two* parts, which may or may not be given at one sitting. In each case, however, the parts will be taken together for the purpose of scoring.

   (c) One part of the test in *English* will cover *Literature and Reading,* and the other will cover Language (Oral and Written English, and Spelling). The former will test the candidate's ability to *comprehend* and *appreciate* what he reads, and to *express his appreciation in acceptable form. It will not necessarily be based on the prescribed reading, but may make use of "sight" selections.*

   The latter will be a test on *Language usage,* and on the *practical application of the more important principles of sentence and paragraph structure.*

   (d) *The final value assigned to a candidate's answer papers in Literature and Language will depend not only on their content, but on the quality of the written expression in respect to spelling, clearness, correctness and good form.*

   The same treatment will be given to the candidate's answer papers in *Social Studies, Mathematics, Science and Health Education.* On every paper a definite portion of the score will be assigned for spelling, clearness, correctness and good form.

   (e) One part of the test in *Mathematics* will cover *Algebra,* and the other part, *Geometry.*

3. All answer papers in subjects of the Grade IX Examination must be forwarded to the Department of Education, where they will be read and scored by a committee of sub-examiners, under direct instructions from the High School Entrance Examination Board.

4. (a) Pupils who complete the programme of the Intermediate School and write on the Grade IX Departmental Examination may be candidates for the Grade IX diploma. In order to obtain the diploma a candidate must pass the Grade IX Examination in English, Social Studies, Mathematics, and General Science and Health Education, and must also, during the year in which the written examination is taken, have obtained a satisfactory standing in three of the optional subjects of the Grade IX programme, on recommendation of the principal or teacher in charge.

   (b) Candidates will not be permitted to write on part of the Grade IX examination; nor will they be given credit in separate subjects of the examination. They may, of course, take more than one year to complete the Grade IX programme, but *they must take the written examination as a whole,* and at the time they take the examination, they must have completed the requirements in three optional subjects.

5. (a) No promotion tests will be provided by the Department in the optional subjects of the Grade IX programme. Standing will be granted in these subjects on recommendation of the superintendent, principal or teacher in charge.

   Provided, however, that *standing will not be granted in cases where the teacher's qualifications have not been approved by the Registrar of the Department of Education.* the optional subjects on which the teacher reports must correspond with those approved by the inspector.

   (b) Because of the fact that many Grade IX pupils will elect optional subjects in which they have had no previous training in the intermediate school, teachers are asked, when assigning grades to the work accomplished by these pupils in the optional subjects, to attach as much importance to the amount of progress made by the pupil during the year as to the standard of accomplishment which he reaches at the end of the year. For example, a pupil beginning with little training in Music may during the year's work have made very great progress, even though at the end of the year he does not reach what would be regarded as a desirable standard of achievement for a Grade IX pupil.

   (c) *No pupil is eligible for promotion to the high school who has not obtained standing in three optional subjects.*

6. Teachers of Grade IX classes will receive during the spring term the following printed forms from the Department of Education:

   (a) A circular of instructions respecting the Grade IX Examination.

   (b) Forms for the Principal's Confidential Report.

   (c) Grade IX Record Cards, which will also serve as pupils' applications to write on the Grade IX Examination.

   Certain blanks on the Record Card are to be filled in by the teacher.

   Directions for doing so will be given in the circular of instructions.

The Grade IX Record Card becomes, when completed, an important document conveying within small compass a great deal of information respecting a pupil's school performance.

When the cards have been returned to the Department, the Grade IX examination scores will be entered in the blanks reserved for the use of the Department. The cards will then be canvassed by the High School Entrance Examination Board, and thereafter be kept on file at the Department for later entries of high school records.

7. *Certificates for Standing in Grade IX Music.*—Certificates of the following Examining Boards, issued for the grade specified in each case, will be accepted by the Department of Education as the equivalent of full Grade IX standing in Music.

Examining Boards	Intermediate School Grade IX
	Practical
Western Board of Music	Grade IV
University of Toronto Toronto Conservatory	Grade V
McGill University McGill Conservatorium	Junior Grade
Associated Board of Royal Schools	Grade IV

For a more comprehensive statement regarding Music, see the Programme of Studies for the High School, Bulletin II, page 41.

Promotion from Grade IX to the High School

1. No pupil will be permitted to take instruction in high school subjects until he has completed the intermediate school programme and has been promoted to the high school.

2. No pupil is eligible for promotion to the high school who has not been granted a satisfactory standing in three of the optional subjects of Grade IX.

3. A candidate's standing on the Grade IX Examination will be determined in the main by the average of his scores on the four tests of which the examination consists. A reasonable minimum achievement will be required on each of the tests. It may be further stated that the High School Entrance Examination Board, in recommending for promotion, will consider the candidate's record as a whole, with due regard for (1) his standing in the optional subjects, (2) other data reported on the Record Card, and (3) the Principal's Confidential Report. The Board may make special recommendations when such are required.

4. The following schedule will govern promotions:

Average Achievement	*Condition of Promotion*
Grade A: 60% or over. Grade B: 45%-60%.	With A or B standing, pupils are free to take any course or subject of the High School Programme.
Grade C: 30%-45%.	Conditional promotion. Pupils will be required to take *English, Social Studies,* and *Health and Physical Education.* They may, in schools where the facilities permit, elect other subjects to fill out the first year programme, but *not any* of the following: *Latin, French, or German.*
Grade D: Under 30%.	Failure. Pupils must repeat the Grade IX course.

Pupils whose Grade is C may, if they prefer, repeat the Grade IX year's work.

OUTLINE OF COURSES

ENGLISH

The course in English for the Intermediate School embraces (I) *Literature and Reading* and (II) *Language;* the latter including *Oral* and *Written Language, Grammar, Spelling* and *Word-Study.*

NEW FEATURES OF THE PROGRAMME IN ENGLISH

Some of the differences between the new and old programme in English for Grades VII, VIII and IX are basic. An appreciation of these will affect very materially the type of teaching procedures, the classroom activities, the response of the pupils, and the attainment of objectives.

1. Although English is listed in the Programme as a "subject," it is more properly *a tool for use in the other subjects.* There is a vital connection between the branches of English and each of the other subjects; for example, between Literature and Dramatics, or Music; between Reading and Social Studies, General Science, or Mathematics; or between Language and Social Studies, Dramatics, or Junior Business.

2. *Every teacher will therefore be a teacher of English.* Neither Literature nor Language can now be regarded as compartments that are separate from other parts of the programme. The social ideals embodied in Literature selections will be subject to scrutiny in the Social Studies class. Pupils' reports on outside reading, the concise statements required of them in observations and experiments, and their well-expressed ideas concerning problems under discussion, are practical exercises in Oral and Written Language. In schools where instruction is departmentalized, *the teacher of English can no longer be held solely responsible for checking and criticizing oral and written English.* It will be the duty of the principal to devise a plan for distributing the responsibility.

3. It follows also that the teaching of English must be *unified.* Reading cannot be divorced from Literature; nor Language from Reading. Within Language itself, oral and written expression cannot be kept apart; nor can Grammar or Spelling be isolated from "Composition." Grammar has been a barren subject, largely because it is taught for its own sake, and not as the technique of correct and effective expression.

4. The programme in English stresses *pupil activity* rather than formal instruction. Teachers of the junior grades in the Elementary School find that Oral and Written Language improve very greatly as a result of enterprise work. It is not too much to expect that the activities required in the Social Studies of the Intermediate School will have the same result.

Likewise, the course in Dramatics should stimulate improvement in reading ability and oral expression. On the other hand, there will be less time given to the intensive "teaching" of Literature. Pupils will do more reading for themselves.

5. The time allotment for English has been reduced to the level prevailing for the other major subjects. In the former programme for Grades VII and VIII, 600 of the 1,500 minutes a week was the assignment for English. Next came Arithmetic with 225 minutes, Elementary Science with 170 minutes, and Citizenship with 125 minutes. The burden of proof rests on those who maintain that this excess in time allotment for English was justified by results. A large amount of the purely formal class instruction was undoubtedly wasted effort. English in the new programme will be interwoven with other subjects. There will be less time for the formal teaching of Literature and for formal exercises in Language. There will be more time for the expression of the living thought that springs from experiences of daily life.
   In Grades VII and VIII there is a special allotment of time to be used for *remedial instruction in English.*

6. The material chosen for English studies will be socially useful. It will become "functional" through being both real and meaningful to the pupil. In Literature, it will consist of contemporary rather than classical selections, and will embody social ideals that are closely related to the Social Studies. It will not exclude entirely the offerings of magazines, newspapers, the photoplay, and the radio. In Language, the material will relate definitely to practical "speech situations." It will aid in training pupils to do well some of the things that they will certainly be required to do in later life, no matter how badly they perform, and will give them the confidence that comes with the ability to perform well.

7. The method of testing will give both teachers and pupils much more freedom than was possible in the former course. The Literature test will be largely a test in "silent reading" with some attempt to test appreciation by means of "sight" selections. The reproduction of factual information will be minimized. The Language test will be a test, not of what the pupil can write about the theory of correct and effective expression, but of how well he can put the theoretic principles into practice. Correct usage and properly constructed sentences are the things that will count.

LITERATURE AND READING

No sharp line can be drawn between *Literature* and *Reading* as parts of the programme in *English.* The *intensive* study, usually of selected masterpieces, for purposes that include interpretation, appreciation, edification, and acquisition of sound standard of discrimination and judgment, is what has traditionally been regarded as the subject of *Literature.* A more extensive type of study, less directly under the guidance of the teacher, and less for edification

than enjoyment, has commonly been called *Supplementary Reading.* Besides this may be placed *recreational, leisure* or *"free"* reading. Then there is reading of the *work type,* which is required in the study of a textbook or the gathering of information. There is also *Oral Reading,* for the edification or entertainment of listeners. Finally, there are exercises for practice in the technical skills of silent and oral reading. Throughout these types, the difference lies in the *purpose of the reading* rather than in the material used.

Objectives:

The question of objectives in the teaching of Literature is one on which it is difficult to find agreement amongst teachers. The following include the more important objectives:

1. Familiarity with some, at least, of the literature that has been pronounced as good by competent authorities.
2. The development and acquisition of a taste for good literature, and of approved standards of appreciation, judgment and evaluation in respect to literature.
3. Enlargement of the individual's store of experience through contributions from indirect or "vicarious" experience, with consequent enrichment of mental life and personal culture.
4. A broad and sympathetic understanding of the patterns of human behaviour, with special reference to the individual in society, and to social problems and ideals.
5. Refinement and sublimation of the emotions.
6. Inculcation of the habit of reading good books as a worthy recreation for leisure.
7. Improvement in speech and written expression through an appreciation of the range and resources of the English language.
8. Appreciation of the effects produced by different types of verse and metre.

Not all of these objectives are the concern of teachers in the Intermediate School. Here the value of a course in Literature will be judged mainly by the extent to which it guides the pupils in *exploring the field of reading, enlarging their reading interests,* and finding *good* material of the type they most enjoy. Different pupils will have different tastes. Literature that is universal and timeless, making its appeal to all men for all time, is by no means plentiful. One need not expect, therefore, that all the pupils of a class will appreciate and enjoy all, or even many, of the selections in a school "anthology." The material selected for pupils' reading should represent a range of types wide enough to give the individual some *freedom in choosing* what appeals to his personal interests. There is a fair chance that pupils whose interests have been aroused will learn to like the flavour of at least some kinds of good reading, and will leave school equipped with the habit of seeking enjoyment and recreation in good books.

In this outline there are *five* divisions of Literature and Reading: (1) Intensive Literature; (2) Extensive Literature, consisting of Individual Reading and Free Reading; (3) Oral Reading; (4) Work-type Reading; and (5) Remedial Reading.

1.—INTENSIVE LITERATURE

The older teaching of Literature was appropriate to the days when books were scarce. It made use of a small number of select classics which the teacher expounded with laboured exegesis while the whole class listened, and learned to echo the opinions and *dicta* of the master. In an extreme form, the procedure became a kind of mystic and esoteric cult, with the teacher officating as hierophant. The usual effect was to breed such a dislike for literature that pupils in later life would seldom pick up a serious book, lest it turn out to be the same kind of thing that they studied in school. For *intensive* teaching of this predominantly *formal* type, engaging the class as a whole in a prolonged analytical study of a few selections, there is little place outside the university.

In the Intermediate School, the *formal* teaching of Literature must be diluted with *informal* discussions, and relieved by extensive reading, in both of which there is more freedom for personal enjoyment.

Intensive Literature will therefore include *Formal Teaching* and *Study* and *Group Reading with Informal Discussion.*

Formal Teaching and Study.

The traditional formal "lesson" in Literature can give place to the laboratory method of teaching with good results. Since there is now less class time for English on the programme, more reading will be required from the pupils. Much of the factual or informational material that was formerly taught in the Literature class will now be correlated with other subjects. Group discussion will take the place of laboured essays and reports. The prescription of selections has been *"lessened and loosened."* Occasions for the use of *formal teaching* will therefore be relatively few in number and limited to the following purposes:

1. To help the class appreciate the worth and literary excellence of a few selections of outstanding merit, by inducing a mental or emotional attitude favourable to appreciation.
2. To recapitulate the characteristics of a group of selections chosen for comparative study; or to summarize the points brought out in a series of discussions.
3. To generalize the pupils' knowledge of the elements of literary ornament: rhythm, rhyme, metre, word harmony, figures of speech, vivid pictures, etc.
4. To have the class "sample" a new selection of unfamiliar type, which might otherwise be left untasted.
5. To check up on the mental effort put forth by the class, and to test for growth in the ability to discriminate and evaluate.

Group Reading with Informal Discussions.

A considerable number of selections will be assigned for reading during the regular class periods, or during study periods, but *not* for home reading. Usually the teacher may act as "coach" for the class, offering as many stimulations as possible, suggesting ways of getting the most enjoyment from a given selection, and advising with respect to the use of a dictionary and reference books, or

supplying himself any necessary information. Occasionally the teacher may decide that some of the following preliminary procedures are necessary:

(i) Linking the selection with the pupils' own experience.

(ii) Suggesting a comparison with selections already taken.

(iii) Recreating the atmosphere in which the narrative is set.

(iv) Inducing an attitude favourable to the imaginative or emotional appeal of the selection.

If the selection has dramatic situations, or musical, lyrical or rhetorical qualities, one or two good oral readers may be asked to *make special preparation* for reading the selection, or parts of it, to the class.

After the reading, the teacher may now and again take the lead in discussing with the class the behaviour of characters or the thoughts and feelings of the author, watching the reaction of the class as a whole, and noting the effect of the selection on the attitudes of individual pupils. If the teacher knows his class well, he can detect changes in attitude over a protracted period of time.

Other suggestions are the following:

(i) The life of the author should be "taken as read"; and the prolonged—and deadly—quizz on historical data, allusions, annotations, vocabulary, and other *minutiae* should be omitted *in the Literature class.* Here the aim is enjoyment rather than pedantic information.

(ii) The discussion should deal with broad aspects of the selection: central theme, main events, or general impressions.

(iii) It is impossible to make a class see *all* of the beauties or the excellencies of a selection. The teacher's treatment of the artistry and aesthetic qualities is most effective when it consists of a few simple explanations or brief comments, accompanied by oral reading.

(iv) Short informal discussions by the pupils are usually of more value than formal written reports. The pupils should be able to make definite statements about their impressions, and to refer specifically to passages that support their statements. The discussion should spring from the selection itself, and not from outside references. Adequate comprehension is a pre-requisite for appreciation.

(v) The informal class discussion will resemble the social discussion at meetings of an informal literary club, the teacher participating as a seasoned member.

(vi) *The measure of successful work is the pupils' evident desire to talk freely about their experiences with literature, and to read other selections or books of the same or better quality in their free time. Neither teacher nor pupils should have any concern about preparation for an examination.*

Memorization.

The memorization of passages from literature selections has frequently become a mere device for assurinig the pupils of some

"easy marks" on the final examination. The disappearance of the examination objective will make necessary a readjustment of the pupils' attitude towards memorization. The desire to memorize will be in direct proportion to the intensity of appreciation and enjoyment. Pupils will retain favourite lines or passages without much effort, just as they remember a good joke or an amusing story. They will not respond to a procedure in which memorization is regularly the final stage, taking the form of an imposed task.

Before pupils attempt to memorize poetry, they should be familiar with many selections, some of which have been read aloud in class. Individual pupils will then be in a position to choose for memorization passages that make a special appeal. The teacher will encourage a choice of best passages, and will suggest methods of memorizing that are psychologically sound and effective. Retention can be made permanent by "spaced repetitions," in class programmes or other audience situations.

Pupils who enjoy literature will memorize 100-150 lines, or more, of poetry.

2.—EXTENSIVE LITERATURE

Extensixe Literature comprises *Individual Reading and Free Reading.* It also includes some reference in class to *Photoplays* and *Radio Broadcasts,* and to *Newspapers* and *Periodicals.*

The general objectives are the same as for Intensive Literature. There is also an important specific objective: that of encouraging the pupil to read full-length books in order that he may develop an interest in independent reading. The activities required do not engage the class as a whole at one time. Individual pupils, or small groups of pupils, read under the guidance of the teacher, either during their free time at school, or at home.

Individual Reading.

Pupils are required to select a few books for Individual Reading from a *prescribed list,* and to read them *in the classroom or the school library* during their study periods, or other free periods. *They should not be asked to read these books at home.* The number of books required is *two* for Grade VII, *three* for Grade VIII and *four* for Grade IX. (See the List of Authorized Reading on pages 28 et seg.)

The teacher's procedure will be much the same as that outlined above for Informal Discussion, but it will be applied to individual pupils, or to small groups that are reading the same book. By means of short informal conferences from time to time, either with individuals or with groups, the teacher will keep in touch with the progress that the pupils are making, and invite oral reviews, and discussion of such matters as the setting, the characters, outstanding incidents, vivid scenes, or other features of special interest. Written reports or tests should *not* be used as check-up devises.

Free Reading.

Free reading is based on the fundamental principle that *the habit of reading good books comes only through enjoyment, and never through compulsion.* It is reading that the pupil is free to do,

or not to do, as he chooses. Free reading will be done at home, where the pupil may now and again exercise his right to choose a poor book as well as a good one. He will learn to discriminate by reading both kinds. There is a general prejudice against prescribed reading, which it will take our schools a long time to overcome. Many adults still think of literature as the kind of thing that is read in schools, but nowhere else. Adolescent pupils are susceptible to the influences of their community. They want to read, not classics, but books that they hear about—books by contemporary authors that "are being read." In this connection, the influence of film plays and radio programmes should not be overlooked.

It is to be expected that the teacher will guide his pupils in their choice of material for free reading. *The guidance should be systematic, but so unobtrusive that the pupils are not directly aware of it.* The teacher who is well informed about juvenile books, and who at the same time knows his pupils well enough to be acquainted with their personal likes, dislikes, and aspirations, can do some very effective work by suggesting for each pupil books that are suited to the pupil's present experience and level of comprehension. If the teacher's advice is really helpful, the pupils will soon acquire the habit of discussing their reading *frankly* with the teacher.

Both the classroom and the school library should be places *where reading stimulations and opportunities abound.* Book lists, book jackets, and interesting illustrations from books may be posted in the classroom. Book lists should include some short stories, fiction, descriptions of travel, practical applications of science, biography, and drama, suited to each of the three grades. For each grade there should be a range of choice corresponding to differences in mental capacity.

Free reading, like all other activities of the Intermediate School, should be exploratory. Pupils should therefore be encouraged to venture occasionally into fields of reading other than those with which they are most familiar.

The value of the course in Literature as a whole depends on the quality of the pupils' free reading. The final test is simply this: Are the pupils reading more and better books?

Photoplays and Radio Broadcasts.

Film plays and radio programmes reflect popular standards of taste. The entertainment provided makes use of the common forms of literary expression, and should therefore be discussed regularly as part of the course in Extensive Literature. Better programmes will come when higher standards of criticism are generally employed. The intermediate School can perform a valuable service in developing in pupils an intelligently critical attitude towards these programmes. The teacher should provoke and guide discussion, but keep it free and frank. Any display of superiority on his part tends to produce a situation in which the pupils learn merely "to predict with accuracy whether a specified photoplay or broadcast is one of which the teacher will approve."

Newspapers and Periodicals.

Newspapers and magazines make approximately nine-tenths of the reading diet for adults. The Intermediate School cannot disregard the fact.

Much of the material in newspapers and periodicals is intended for work-type rather than recreational reading. Nevertheless, it is possible to discuss standards of literary merit by reference to newspaper editorials or fiction, and to magazine fiction or poetry. A useful study can be made of the best available newspapers, magazines and other periodicals. Magazine fiction should get some attention in discussion about the pupils' free reading.

3.—ORAL READING

The day of "relay reading" in the "literature lesson" has now passed, to the entire satisfaction of literature classes. Oral reading, as one of the parts of social entertainment, is now being revived by the radio. Oral Reading is of value in the classroom for the following purposes:

(i) To stimulate the appreciation of poetry and elevated prose. (*Audience reading.*)

The teacher, if a good oral reader, should interpret orally the beauty and effectiveness of passages from the literature selections notable for their melody, or for dramatic or other outstanding qualities. No pupil should be asked to read such passages who has not made *special preparation.*

(ii) To present to the class passages that have been cited for comparison or illustration.

(iii) To exhibit the pleasing effect of deliberate tempo, correct pronunciation, clear enunciation, full vowel sounds, and good tone quality.

(iv) To provide for improvement in speech.

Practice in Oral Reading is an excellent training for public speaking. It is an important part of Voice and Speech Training; and a necessary adjunct to work in Dramatics.

(See the outline for Dramatics, and the section on *Voice and Speech Training* in the *Programme of Studies for the Elementary School.*)

The work in *Choral Speech,* begun in the Elementary School, may be continued in the Intermediate School. See the *Programme of Studies for the Elementary School.*)

4.—WORK-TYPE READING

In reading of this type, the dominant purpose is not enjoyment, but comprehension with economy of time. The skills required are those of silent *reading.*

Work-type reading is the basic tool for work in Social Studies, General Science, Mathematics, and other subjects. It occurs in the following forms:

(i) *Discursive reading,* as in the rapid scanning of newspapers and magazines, or in browsing among books.

(ii) *Selective reading,* as when information is to be gathered from different paragraphs, chapters, or books, and used in a *report.*

(iii) *Problem or study reading*—the most common form in school work.

(iv) *Reference Reading,* in which material is not only gathered from different sources, but also weighed and evaluated.

Proficient reading is a process of complex reasoning. It involves finding the main idea, noting details, drawing inferences, following directions, pausing for mental reviews, and varying the rate to suit special purposes.

There are different *rates,* as well as different *forms,* of work-type reading, corresponding to different kinds of material, and different purposes of the reader. There is *skimming,* or very rapid scanning for topical or general ideas;*rapid* reading for getting the gist or for review; *normal-rate* reading, where the material is of average difficulty, or the purpose is recreation; and *careful* reading, where difficult material is read for study.

Grade VII.

Pupils whose reading ability has developed to the level of Grade VII should have acquired all of the basic reading skills. They should be able to comprehend words, phrases, sentences, or paragraphs without any trouble from eye-span or word recognition. They should be able to get the main thought of a paragraph and state it in concise form; and also to follow directions requiring comprehension. When they meet a new word, they should be able either to infer its meaning from the context or to find the meaning in a dictionary. They should also possess a normal reading vocabulary, and use different rates of reading.

N.B.—At the beginning of the school term the teacher should provide for a thorough check-up on the reading skills and abilities of Grade VII pupils, with special reference to comprehension, speed and vocabulary. It is not uncommon to find pupils at this level who have only one rate for reading. The standard for normal-rate reading in Grade VII is 175-200 words per minute. The use of standardized tests is recommended.

Teachers are asked to read the sections on Reading in the Programme of Studies for the Elementary School.

Grade VIII.

In this grade, the pupils should be able to do the greater part of their reading at the normal rate, reserving the slow rate for difficult material that requires study. They should also exhibit a fair degree of skill in rapid reading.

Grade IX.

In this grade, the essential requirement is ability to select important details and grasp their relationship to the main thought. Pupils of good mental endowment will now make further progress, but only through their own efforts.

In all three grades, general improvement in silent reading will come from work in the content subjects. The interpretation of mathematical problems, for example, furnishes training in comprehension, speed and vocabulary. Science work requires the ability to follow directions, and also to recognize a general principle that binds facts together. Social Studies emphasizes the importance of logical coherence. But pupils of weak ability in silent reading may require special remedial training before they can make satisfactory progress in these subjects.

5.—REMEDIAL READING

The programme provides for Remedial English, which comprises Remedial Reading and Remedial Language.

Remedial Reading is intended to cover the special training required by pupils who are weak in *oral reading* or in *silent reading.* Reference has already been made to the former. A few suggestions are set down here with respect to the latter.

The material for remedial exercises in silent reading should be of the factual or informational type, both because this kind of material makes the testing and scoring easy, and because the dominant purpose of the reader is comprehension, and not appreciation or enjoyment. Good material can be found in the textbooks, or pupils' reference books, for the content subjects.

Other good material for Grades VII and VIII can be found in *The New Silent Readers*—A Basal Activity Series, Books VII and VIII (John C. Winston Co.).

The material of the following books is of interest to high school pupils, but ranges in reading difficulty from the fourth-grade to the ninth-grade level:

Adventure Bound—Persing and Leary (Harcourt, Brace & Co.).
New Horizons—Miller and Leary (Harcourt, Brace & Co.).

The teacher who is planning work in remedial reading should consult a good reference book, such as one of the following:

The Improvement of Reading—Cole (Farrar and Rhinehart).
Remedial Reading—Monroe (Houghton Mifflin).
Improving Your Reading—Wilkinson and Brown (Noble and Noble).
Reading and Literature in the Elementary School—Paul McKee (Houghton, Mifflin Co.).
Reading and Study—G. A. Yoakam (Macmillan Co.).
The Improvement of Reading—A. I. Gates (Macmillan Co.).
Silent and Oral Reading—C. R. Stone (Houghton, Mifflin Co.).
Silent Reading—J. A. O'Brien (Macmillan Co.).

6.—AUTHORIZED READING

Readers have been authorized for use in Grades VII, VIII and IX; and books have been prescribed for *individual reading* in each of these grades.

Readers.

GRADE VII—*The Canada Book of Prose and Verse,* Book I (Ryerson—Macmillan).

GRADE VIII—*Life and Literature,* Book II (Gage—Nelson).

GRADE IX—*Modern Literature for Schools*—Leaver (Copp, Clark Co.).

For each grade, the teacher, in consultation with the pupils, should choose from 30 to 35 selections for *Intensive Literature,* and about 15 selections for *Oral Reading.*

Besides these, each pupil should choose about 25 selections for his *Individual Reading.*

IMPORTANT NOTICE.—In one-room schools, or schools in which Grades VII, VIII and IX occupy the same room, the three grades will be combined for Literature and Reading, and will use the Grade VII Reader during the year 1944-45. During the following year the Grade VIII Reader will be used, and during the third year, the Grade IX Reader.

Books for Individual Reading.

No school course in Reading and Literature is in any way successful if it does not induce the habit of reading good books for pleasure and recreation. The following list of books is representative of books that make an appeal to pupils of the intermediate-school age.

The books are arranged in three groups *according to the level of difficulty in style and content.* In the first group are some books that do not present much difficulty to slow readers, or to pupils who have read but little. The third group represents the highest of the three levels. This arrangement is to be preferred to a special assignment for Grade VII, another for Grade VIII and a third for Grade IX, for the reason that a wide range of reading ability will be found in any one of these grades. There may be pupils in Grade VII who read on a higher level than some of the pupils in Grade IX.

Every pupil is expected to select from the list and read, under the guidance of the teacher, *at least four books each year.* No pupil can be expected to like all of the books in any one group; but *all pupils should be encouraged to diversify their reading,* selecting not fiction and short stories only, but some non-fiction, biography, poetry, and drama as well.

The titles of the books at the head of each group are printed in bold-face type. The books have been in use for some time as prescribed reading and are likely to be found in most classroom libraries. Every classroom library should contain a selection of books from each of the three groups, sufficient in number to allow all of the pupils a fair range of choice.

GROUP I:

Vachell: **The Hill.**
Mark Twain: **Huckleberry Finn.**
Alcott: **Little Women.**
Charles Kingsley: **The Heroes.**
Kipling: **Just So Stories.**
Henry Gilbert: **Robin Hood and the Men of Greenwood.**
Burnett: *The Secret Garden.*
Hooker: *Prince Jan, St. Bernard.*

O'Brien: *Silver Chief, Dog of the North.*
Dodge: *Hans Brinker or the Silver Skates.*
Alcott: *Little Men.*
Alcott: *Eight Cousins.*
Grey Owl: *Adventures of Sajo and Her Beaver People.*
Kipling: *The Jungle Book.*
Twain: *Adventures of Tom Sawyer.*
Salten: *Bambi.*
Kent: *He Went With Marco Polo.*
MacDonald: *The Princess and Curdie.*
Lloyd: *Flash, The Gypsy Dog.*
Porter: *Just David.*
Carroll: *Alice in Wonderland.*
Heming: *The Living Forest.*
Habberton: *Helen's Babies.*
Marchant: *Hilda Holds On.*
Marchant: *Hope's Tryst.*
Blake: *Three Against the Gang.*
Wyckoff: *The Secret of the Armor-Room.*

GROUP II:

John Masefield: **Jim Davis.**
John Bennett: **Master Skylark.**
Ethel H. Bennett: **Judy of York Hill.**
John Buchan: **Sir Walter Raleigh.**
Ernest T. Seton: **Wild Animals I Have Known.**
Grenfell: **Adrift on an Ice Pan.**
Annotated by H. A. Frise: **Longer Ballads for Boys.**
Poems of Action Third Series.
John Hampden: **Eight Modern Plays.**
Twain: *The Prince and the Pauper.*
Montgomery: *Anne of Green Gables.*
Montgomery: *Anne of Avonlea.*
Doyle: *The White Company.*
Doyle: *Adventures of Sherlock Holmes.*
Haliburton: *Royal Road to Romance.*
Haliburton: *The Flying Carpet.*
Sabatini: *Captain Blood.*
Orczy: *The Scarlet Pimpernel.*
Henty: *With Wolfe in Canada.*
Henty: *In the Reign of Terror.*
Stevenson: *Treasure Island.*
Grey: *Betty Zane.*
Comstock: *Pet Book.*
Tarkington: *Penrod.*
Porter: *Girl of the Limberlost.*
Ilen: *What Time Is It?*
Kipling: *Captains Courageous.*
Kipling: *Stalky and Co.*
Dragonet: *Salter the Mongol.*

GROUP III:

G. F. McNally: **A Book of Good Stories.**
A Kipling Reader.
Conan Doyle: **Adventures of Sherlock Holmes.**

Kipling: **Puck of Pook's Hill.**
Jack London: **The Call of the Wild.**
Montgomery: **Anne of the Island.**
Thomas: **Boy's Life of Colonel Lawrence.**
Campbell: **Arctic Patrols.**
Albert B. Prince: **The Girl in White Armour.** A True Story of Joan of Arc.
Masefield: **Bird of Dawning.**
Buchan: *Thirty-nine Steps.*
Buchan: *Greenmantle.*
Buchan: *Prester John.*
Johnson: *Safari, A Saga of the African Blue.*
London: *Brown Wolf.*
Kipling: *Kim.*
Scott: *Tales of a Grandfather.*
Baden Powell: *Lessons of a Life Time.*
Hilton: *Lost Horizon.*
Hope: *Prizoner of Zenda.*
Van Dyke: *The Other Wise Man.*
Grey: *The Last of the Plainsmen.*
Eliot: *The Mill on the Floss.*
Waln: *The House of Exile.*
Burnett: *T. Tembarom.*
Wren: *Beau Gests.*
Grey Owl: *Men of the Last Frontier.*
Dickens: *Oliver Twist.*
Dickens: *David Copperfield.*
Dickens: *Tale of Two Cities.*
Blackmore: *Lorna Doone.*
Kirby: *The Golden Dog.*
Dana: *Two Years Before the Mast.*
Rawlings: *The Yearling.*
Poe: *Tales of Mystery and Imagination.*
Longfellow: *Tales of a Wayside Inn.*
Major: *When Knighthood Was in Flower.*
de St. Exupery: *Wind, Sand and Stars.*
Ferber: *So Big.*
Thane: *Queen's Folly.*

LANGUAGE

Language embraces all phases of oral and written expression, including grammar, word-study, spelling, and the mechanics of English—capitalization of punctuation.

Language work in the Intermediate School should be a natural outgrowth of the language work of Division II of the Elementary School. Activity procedures, in modified form, should be used to place the pupils in natural learning situations. The course should therefore be presented in terms of *interesting things to be done,* and the activities should be closely related to the social experiences of the pupils inside and outside school. To present such a course successfully, advantage should be taken of every opportunity that presents itself to secure a "carry-over" of the English usage rules presented in the English class to the pupils' oral and written expression in all other subjects. *Every class must be, to a certain*

extent, a class in English and every teacher must regard himself a teacher of English.

The prescribed textbook, namely the *Junior English Activities,* Books I, II and III, were selected for Grade VII, VIII and IX respectively. These textbooks are not to be used mechanically. Pupils in Grade VII should not be required to begin at the first page of Book I and proceed, page by page, slavishly completing every exercise. The teacher is responsible for organizing the class work to meet the individual and special needs of the class, and should therefore use the textbook only to make the language lessons as instructive and enjoyable as possible for each individual pupil and for the class as a whole.

Oral Expression.

At least fifty per cent. of the Time alloted to Language must be devoted to oral work. Not only in the English class but in every class the teacher should take note of each pupil's posture, tone qualities, pronunciation and enunciation, choice of words and style in oral answers or reports in order to criticize the pupil's efforts constructively, and thus give practical effect to the instruction in English.

Written Expression.

Written "compositions" in the Intermediate School should be brief; on the average, not more than two or three paragraphs in length. Here again close co-operation amongst all teachers in the school is imperative in order that the work of correcting exercises may be shared by all the teachers while at the same time affording the pupils ample practice in writing and ensuring that their efforts are criticized helpfully from the standpoint of language usage.

Grammar.

No attempt should be made to undertake a formal study of grammar in the Intermediate School. The grammar study should be "functional" in character; that is, it should be subordinated to and motivated by the work in expression. The treatment of this phase of the work in prescribed textbooks is sufficiently detailed to meet the needs of most children at the Intermediate-school level. If in the rare instances the teacher finds it advisable to deal with some phase of grammar in a more technical manner than that employed in the textbook, he may supplement his instruction by reference to *The Open Door English Series,* Books I, II, and III.

The following phases of grammar are important for functional treatment:

1. Recognition of a sentence, as distinguished from a phrase or a subordinate clause.
2. Recognition, without recourse to definitions, of the eight parts of speech.
3. Correct use of inflected forms of the personal pronouns and of certain irregular verbs. This phase can be treated more effectively in these grades through the use of "patterns of speech" than through intensive instruction in formal grammar.

Spelling.

Daily formal instruction in spelling for all pupils in the intermediate grades is neither necessary nor desirable. Nevertheless, the teacher should still make provision for the occasional formal lesson. The word list of the Quance Speller, Book III, is a suitable basic list for formal instruction; but this list should be supplemented by words selected by the pupils in accordance with their immediate reading and writing needs. Proper use of standardized tests, such as those listed below, should enable the teacher to segregate the pupils in need of remedial attention.

Remedial Instruction.

The textbooks make provision for offering some remedial language work. Pupils requiring special help with capitalization, punctuation, grammar and sentence structure may be directed to the pamphlet entitled *A Student's Guide to Correctness in Written Work for Grades VII to XII*, by Pressey and Conkling, a copy of which should be available in the classroom library.

Check-List for Oral and Written Language.

(Grades VII, VIII & IX.)

The Check-List for Oral and Written Language that is used by teachers of English 1 and 2 in the High School, may be recommended for use also by teachers of the intermediate grades. It is reproduced here from the Programme of Studies for the High School, Bulletin II:

1. Penmanship, arrangement, and general appearance of all written work.
2. Spelling (including the apostrophe).
3. Capitalization. (*See Grammar for Composations*: Ward.)
4. Punctuation:
   - (1) Period and Question Mark.
   - (2) Comma:
     - (a) To separate words and phrases in a series.
     - (b) To mark off interruptions or parenthetical expressions.
     - (c) To mark off a phrase or clause at the beginning of a sentence (unless the sentence is short and the meaning clear without the comma).
     - (d) To mark off non-restrictive clauses.
     - (e) To separate words that might erroneously be read together.
   - (3) Semi-colon:
     To separate clauses in a compound or compound-complex sentence where the conjunction is omitted.
   - (4) Colon:
     - (a) To follow a general statement preceding specific examples.
     - (b) Before a long quotation.

5. Language:
   (1) Pronoun:
      (a) Correct case forms of pronouns.
      (b) Agreement of pronoun with antecedent.
   (2) Distinction between adjective and adverb.
   (3) Verbs:
      (a) Use of the correct forms of verbs listed below, with emphasis on the auxiliary with the past principle: lie, lay, spring, swim, write, take, speak, sing, see, run, go, give, drink, do, come, begin.
      (b) Agreement of verb with subject.
      Example: Incorrect—He don't want to go.
      Correct—If I were you I should go.
      (c) Use of subjunctive in conditions contrary to fact.
      Example: Incorrect—If I was you I'd go.
      Correct—If I were you I should go.
      (d) Use of perfect tenses:
      Example: Incorrect—He said he never saw a better game.
      Correct—He said he had never seen a better game.
   (4) Common errors, such as the following:
      (a) The use of *different than* for *different from.*
      (b) *These and those kind* for *this and that kind.*
      (c) *Had ought* for *ought.*
      (d) *Couldn't hardly* for *could hardly.*
      (e) The preposition *like* for the conjunction *as.*
      (f) The adjective *real* for the adverb *very.*
6. Sentence Structure:
   (1) Cultivate—
      (a) The use of simple and complex sentences in place of the over popular compound sentence.
      (b) The use of parallel structure.
   (2) Avoid—
      (a) Indefinite reference of pronouns.
      (b) Unrelated modifiers: dangling participle or gerund.
      (c) Misplaced modifiers; e.g., He *only* has two wrong.
      (d) Unnecessary change in grammatical construction.
7. In all oral work pay special attention to enunciation, pronunciation, and audibility.

Textbooks Authorized for the Use of Pupils:

Grade VII—*Junior English Activities,* Book I: Hatfield, Lewis, Thomas and Woody.

Grade VIII—*Junior English Activities,* Book II: Hatfield, Lewis, Thomas and Woody.

Grade IX—*Junior English Activities,* Book III: Hatfield, Lewis, Besig and Borchers.

Reference Books in Language for the Use of Pupils, Grades VII, VIII and IX:

The Canadian Speller, Book III: Quance.
Century Collegiate Handbook: Garland, Greever and Jones.
High School Handbook of Composition: Wooley, Scotland and Tressler.
The Open Door English Series for the Junior High School, Books, I, II and III: Scott, Peet, Robinson and Bigelow.
Junior English in Action, Books I, II and III: Tressler and Shelmadine.

Teachers' Reference Books in Language, Grades VII, VIII and IX:

The Teacher's Word Book: Thorndike.
Grammar for Composition: C. H. Ward.
An Experience Curriculum in English: English Monograph No. 4, National Council of Teachers of English.
Talks to Beginning Teachers of English: Dowtby.
Methods in Elementary English: Young and Memmott.
The Art of Teaching English: J. H. Fowler.
Bread Loaf Talks; Teaching Composition: Hitchcock.
Modern English Writing: Douglas Bement.
English for the English: Geo. Sampson.

Suggested Test and Remedial Work Material:

1. *Student's Guide to Correctness in Written Work for Grades VII to XII*: Pressey and Conkling.
2. *Buckingham Extension of the Ayres Spelling Scale*: B. A. Buckingham.
3. *Morrison-McCall Spelling Scale.*
4. *Calgary Achievement Tests*:
   Fundamentals of English:
   - Capitalization (Grades V-XI).
   - Punctuation (Grades V-XI).
   - Sentence Structure (Grades V-XI).
   - Good Usage (Grades V-XI).
5. *The Dominion Tests*:
   Group Achievement Tests, Part I:
   - Test 1—Spelling.
   - Test 2—Language Usage.
   - Test 3—Paragraph Reading.
6. *Hudelson English Composition Scale*: E. Hudleson.

NOTE.—All reference books and test material listed above are procurable through the School-Book Branch of the Department of Education.

SUPPLEMENTARY NOTE

Speech Training, Choral Speaking and Dramatics.—Training in Oral Language must include Speech Training. Speech Training and Choral Speaking are also parts of the course in Dramatics. For Choral Speaking, see the outline in Dramatics and for additional reference books in Language, see Bulletin II of the Programme of Studies for the High School, pages 9 and 10.

SOCIAL STUDIES

INTRODUCTION

"The scope of the social studies embraces the entire field of human relations, the significant movements of human history, and the problems and issues of contemporary society. Consideration of the customs, culture and social practices of the people of the neighbourhood, State, nation, and world are the province of the social studies. The social studies include those fields of human experience that deal with man-to-man relationships considered in the subjects of history, geography, economics, civics, sociology, home economics, and phychology. Social movements and social forces can best be understood and improved when concepts and materials are drawn from these fields and integrated by the learner around large centres of human interest. This course of study accepts this unitary view as contrasted with that of history, civics, geography, etc., pursued as separate fields of subject matter."—"The Tentative Course of Study" for the State of Virginia, Grade VIII, page 25.

The course in Social Studies for the Intermediate Grades—VII, VIII and IX—of Alberta Schools will introduce to the pupils the problems of modern civilization in their historical and geographical setting. As its name implies, it is socially directed, dealing essentially with the "here" and "now," and subordinating the "there" and "then." It is in no sense an attempt to camouflage history, geography and civics. When the content of these formal subject categories sheds any light on the problems under study it is then introduced. Frequently the pupil's textbook will be the community in which he lives.

There can be no questioning of the importance of introducing youth to an understanding of contemporary civilization. Present conditions throw into sharp relief the vital necessity of understanding modern life and the modern world. Thus our schools are confronted with the difficult task of educating people to become informed, thinking citizens. The rapid development of industrial civilization has produced problems of living together that baffle even the keenest adult brain. In a very few years the generation of children now in our classrooms is to confront those problems. Their reaction to them will be determined by the social spirit they have imbibed in the schools of today.

The course aims to produce good national and international citizens, intelligent, emotionally stable and capable of rational, independent thought. The good citizen should understand the place of the individual, the meaning of society and the means of progress.

Interest is the dynamic motivator of all that man does best. These courses should be so treated that they will interest the student. The mere acquisition of factual information is not education. Mental growth is essential. The student should develop a technique of investigation—individual and co-operative discovery and evaluation of facts, organization and application of findings, and formation of tentative judgments and attitudes. Thus Social Studies should contribute to the production of the desirable qualities of character and conduct found in the good citizen.

Fundamental Objectives

The fundamental objectives of the Social Studies programme are therefore the following:

1. To facilitate an understanding of our social and economic realities; in other words, to acquaint students with enough historical and geographical facts to enable them to comprehend at their level our present-day economic and political institutions and practices.
2. To develop the ability to see both sides of a question, and to think independently on a basis of facts.
3. To induce an attitude of fair-mindedness, and a desire to co-operate with others for the welfare of the community.
4. To train students in the use of efficient methods for securing and organizing information that is available in reference books, atlases and charts; and to extend their use of such tools and pictures, diagrams, maps, graphs, and statistical data.
5. To develop an appreciation of Canadian culture.
6. To make clear to students the effect of mechanization on the production of goods and services, and on developments in transportation and communication.
7. To help students understand the contributions of explorers, frontiersmen and statesmen to the growth and development of Canada and the British Commonwealth; and to understand the contribution made by Canada to the trade of the Commonwealth and the world.
8. To foster an attitude of tolerance and respect for world peoples, and a sympathetic understanding of their social and economic problems.

NOTE.—In this connection, teachers are asked to refer to the *Course in Social Studies in the Programme for the Elementary School,* and to read there the introduction, and the statement of objectives and minimum requirements.

Pupil Activities.

The basic principle of procedure in this course is that *learning is an active process.* The outline abounds in activities that call for pupil experimentation, individual research, and creative self-expression. The social studies classroom, instead of being a place where children "learn" history, geography and civics, is to be a real laboratory, where co-operation, initiative, originality and responsibility are developed.

Here are a few suggestions adapted from Rugg's *Teacher's Guide to the Social Studies Series* (Ginn & Co.):

1. Let the pupils work out their own class organization for the development of problems, electing officers, appointing committees, etc.
2. Give the pupil committees responsibility for class excursions, for managing the library, for producing plays, etc.
3. Encourage pupils to suggest topics for open-forum discussion. Let them introduce current controversial problems in which they are interested, and which are related to the

problem under study. In this way the pupils will not only develop open-mindedness, but they will also grasp the relation to the problem to the life of today.

4. Encourage pupils to ask questions of speakers as reports are being presented, to develop a vigorous interplay of pupil minds and to stimulate thoughtful pupil activity in the work of the course.
5. Permit and encourage individual reactions, fostering the development of individual characteristics whenever possible.

The Activities following each Problem are suggestive only. They are to be used, modified or rejected as the judgment of the teacher dictates. Activities suitable to one class or teacher may not suit another. Each teacher and class must feel free to develop those interests which seem most fruitful and stimulating.

In a few instances formal debates are suggested, but the free discussion of the open-forum appears to be of greater value, as it involves the whole class.

As pupils mature in their ability to conduct an independent investigation, they may be assigned some major topic for study and report.

Pupil activities should be varied:

(a) Discussions by the pupils rather than presentation by the teacher.
(b) Generous readings from supplementary books, magazines, and newspapers.
(c) Oral and written reports by individuals and by committees.
(d) Open-forum work in which all pupils have a chance to contribute.
(e) A work-book containing diagrams, sketches, charts, graphs, summaries, stories, class memos, and map work.
(f) Circle diagrams and time lines to show development changes over a period of time.
(g) A scrap-book containing cartoons, pictures and clippings, suitably labelled, and arranged under problem headings.
(h) Possible excursions to manufacturing plants or utilities.
(i) Use of such statistical references as: The World Almanac, The Canadian Year Book, School Encyclopedias.

The Suggested Content.

N.B.—The following paragraph cannot be made too emphatic. Teachers of Grade IX classes, especially, are asked to read it and re-read it.

The elaboration of the sub-topics for each problem is *not prescriptive,* but *purely suggestive.* The items of the sub-topics fall into natural groupings, each of which may become the immediate problem of some individual or committee. *Under no circumstances is each item to be "taught" in detail.* The teacher who attempts this procedure will complain that the course is too long; for he will find that he cannot complete it within the school year. *All the pupils are not expected to study all the items of every sub-topic.* Different pupils or committees will take different items

and report to the class, which will be responsible as a whole only for the gist of these reports, and for outstanding principles and generalizations. *Teachers are advised to govern their distribution of time by the number of class and open-forum periods which appears at the end of each problem outline.*

The course aims to raise problems; it makes no pretense of solving them. To solve them is the function of adult society. If the teacher gets the right perspective of the course, he will cease to concern himself with the minute details of every problem; and in the meantime his pupils will grow in social understanding.

Correlations.

The course is planned to afford pupils an opportunity to draw on various fields of knowledge for an interpretation of social problems. It is suggested that this will prove an effective method of off-setting the baneful influence of compartmentalized knowledge. A variety of correlated activities is suggested, and alert teachers will seize every opportunity to multiply the suggestions.

Visual Aids.

The use of projected pictures has come to be recognized as a valuable aid to the teacher, and this is particularly true in connection with the new Intermediate Programme of Studies for which a great deal of material is available. The main source of supply of visual instruction equipment and material for Alberta schools is the *Department of Extension of the University of Alberta,* and detailed information may be obtained on application to the Director. The Department has over 500 sets of lantern slides, a quantity of still film rolls, and a large number of reels of motion-picture film, many of which are related to the new programme.

Visual aids are of special value in the teaching of Social Studies.

The Open Forum.

No outcome of this course is more important than that brought about through open-forum discussions. There is, first of all, the practice of each pupil in alert thinking on his feet. In the second place, there is the development of tolerant understanding in its two-fold aspect,—open-mindedness and critical-mindedness. With the creation of these two attitudes, there is developed an immediate and effective antidote against indoctrination by adult influence in the out-of-school environment.

The Pupil's Notebook.

The notebook should be of the loose-leaf type to facilitate the insertion of new material, as the student meets it in the extensive reading which is a feature of the course. The fact that a topic has been concluded should not mean that any related material which the pupil may discover in his later reading is to be ignored. Every effort should be made to keep each problem alive and current throughout the year.

The notebook becomes the pupil's personal record of the development of each problem. It should contain all reading summaries, lists of references, drawings, maps, cartoons, synopses of papers read, and reports of personal investigations. *It should never degenerate into a repository for dictated notes.*

The Division of Work for Grades VII, VIII and IX.

The Intermediate School programme in Social Studies comprises three courses:

Section A, for Grade VII;
Section B, for Grade VIII; and
Section C, for Grade IX.

Sections A and B constitute a two-year cycle. In ungraded schools, therefore, and in schools where Grades VII and VIII are combined, Section A will be taken with both grades during the year 1944-45, *and each alternate year thereafter; and Section B will be taken with both grades during the year* 1945-46, *and each alternate year thereafter.*

Section C will be taken with Grade IX during the year 1944-45, *and each year thereafter.*

In graded schools, during the year 1944-45, *and each year thereafter, Section A will be taken with Grade VII, Section B with Grade VIII, and Section C with Grade IX.*

Textbooks:

The textbooks authorized for the use of Grade IX students (Section C) in September, 1937, is *The World of Today,* by McDougall and Paterson.

No textbook has been authorized for use in Grades VII and VIII. For these grades it is recommended that teachers arrange to have a *classroom library* composed of books selected from lists for the Minimum Library, the Secondary Library, and the Supplementary Library, as set forth on page 40. For a class of *five students,* there must be available on the *classroom shelf* at least *one* copy of each of the books of the Minimum Library. For larger classes the classroom shelf will be proportionately larger.

As the resources of the school permit, there should be additions to the classroom shelf from the lists for the Secondary and the Supplementary libraries.

Old copies of the books named in the three lists, and of other useful books, will be found in most schools or communities. New books can be added each year, with the result that in a few years every Intermediate School should have a good working library for Social Studies.

Classroom Libraries and Reference Books.

For the successful completion of *any of the three courses* it is essential that the pupil shall have at his disposal a *classroom library,* or a school library, rather than the single textbook. The pupils should be encouraged to bring books from home, to consult local public libraries, and *to make a survey of the reading resources of the community*—in books, magazines, periodicals and newspapers.

With respect to the following lists it may be said that *books listed in the Minimum Library are indespensable.* As circumstances permit, additional books should be provided from the Secondary Library, which though not indispensable is very desirable. Thereafter books may be added to the classroom shelf from the Supplementary Library.

Minimum Library: Grades VII and VIII

Our Country and Its People (Section A); McDougall and Paterson—Ryerson Press.
Our Empire and Its Neighbours (Section B); McDaugall and Paterson—Ryerson Press.
A World Geography for Canadian Schools; Denton and Lord—J. M. Dent and Sons.
The Story of Britain and Canada; Paterson—Ryerson Press.
A Reader in Canadian Civics; Wallace—Macmillan Company.
Our Country Past and Present; Nida and Webb—Scott-Foresman.

Secondary Library: Grades VII and VIII

Changing Countries and Changing Peoples; Rugg—Ginn and Co.
We Are Canadian Citizens; Goldring—J. M. Dent and Sons.
Human Use Geography, Book II; Smith—Winston.
Foreign Lands and Peoples; Smith—Winston.
Makers of the Modern World; Searle—Macmillan Company.
Kingsway History, Book II (Revised); J. M. Dent and Sons.
A History of Great Britain; Mowat—Oxford Press.
Romance of Canada; Burt—Macmillan Co., Ltd.
Romance of Maritime Provinces; Seary—Macmillan Co., Ltd.
Romance of Quebec; Sutherland—Macmillan Co., Ltd.
Romance of Ontario; Middleton—Macmillan Co., Ltd.
Romance of Prairie Provinces; Burt—Macmillan Co., Ltd.
Romance of British Columbia; Anstey—Macmillan Co., Ltd.

Supplementary Library: Grades VII and VIII

Canada Year Book *or* Canada, 1939—King's Printer, Ottawa.
How We Have Conquered Distance; Waddel and Bush—Macmillan Company.
Britain and the Modern World; Bellis—Macmillan Company.
Builders of the Empire; Williamson—Oxford Press.
The Great Story of India—Oxford Press.
Paths of Peace Series, Books I-V—Oxford Press.
Native Races of the Empire Series; Hambly—Oxford Press.
Tracing History Backwards, Books I-III; King-Hall and Boswell—J. M. Dent and Sons.
Kingsway Social Geographies, Books I-IV; Young—Dent.
Geography of Europe and Asia; Barrows and Parker—Silver-Burdett.

Teacher's Reference:

Man's Achievement, Book II; Pahlow—Ginn and Co.
Story of Civilization; Seary and Paterson—Ryerson Press.
The Modern World; McKay and Saunders—Ryerson Press.
Society Faces the Future; Gavian—Heath and Co.
The Making of American Civilization; Beard and Beard—Macmillan Company.
Rich Land, Poor Land—Stuart Chase.
Social Studies for Canadians; Cornish and Dewdney—Copp Clark.
Finding New Homes in Canada; Guillet-McEwen—Ryerson.
Pioneer Days in Ontario; Henry-Paterson—Ryerson.
Our Empire Story; Marshall—T. C. Jack.
Story of Old Europe and New America; Barker-Grimm-Hughes—Copp Clark.

Story of Colonial Times; Barker-Grimm-Hughes—Copp Clark.
Background of Modern Nations; McClure-Schick-Wright—Copp Clark.
Story of Nations; Rogers-Adams-Brown.
Nations as Neighbors.
Man at Work: His Industries; Rugg-Kreuger—Ginn and Co.
A Book of Discovery; Synge—Nelson.
Man Conquers the World with Science; Nida—Clarke Irwin.
A Geography of Everyday Things, Bks. I-III; Sondan—West—Irwin.
Canadian Social History Pictures and Manuals:
(1) Loyalists Pioneers—Clarke Irwin.
(2) Early Social and Commercial Life—Clarke Irwin.

Minimum Library: Grade IX

The World of Today; McDougall and Paterson—Ryerson Press.
Commercial and Economic Geography; Morrison—Ryerson Press.
Manual for Geography I; Hilton—King's Printer.
A World Geography for Canadian Schools; Denton and Lord—J. M. Dent and Son.
The Story of Britain and Canada; Paterson—Ryerson Press.
A Reader in Canadian Civics; Wallace—Macmillan Co.
Makers of the Modern World; Searle—Macmillan Company.

Secondary Library: Grade IX

Changing Governments and Changing Cultures; Rugg—Ginn and Co.
Changing Countries and Changing Peoples; Rugg—Ginn and Co.
We Are Canadian Citizens; Goldring—Dent.
Kingsway Histories, Book II (Revised)—Dent.
Economic Geography; Jones—Holt.
Our Industrial World; Smith—Winston.
Raw Materials and Colonies; League of Nations Society, Ottawa.
Canada Year Book, *or* Canada, 1939.
How We Have Conquered Distance; Waddel and Bush—Macmillan Company.
Modern Times; Prescott—Ryerson Press.
A History of Great Britain; Mowatt—Oxford Press.
The Modern World; McKay and Saunders—Ryerson.
You and Your Community; O'Rourke—Copp Clark.
Our Country, Our People and Theirs; Tracy—Macmillan.

Supplementary Library: Grade IX.

Britain and the Modern World; Bellis—Macmillan Company.
Paths of Peace Series, Books I-V; Oxford Press.
Report of the Royal Commission on Price Spreads; King's Printer, Ottawa.
The Social Service Series; Rugg—Ginn and Company:
Introduction to American Civilization (Book I).
A History of American Civilization (Book III).
A History of American Government and Culture (Book IV).
Introduction to the Problems of American Culture (Book V).
(Books II and VI of this Series are listed above.)
Microbe Hunters; De Kruif—Harcourt, Brace and Company.
Hunger Fighters; De Kruif—Harcourt, Brace and Company.

Our Changing Social Order; Gavian, Gray and Groves—Copp Clark.
The Native's Return; Louis Adamic—Harper and Bros.
Inside Europe; Gunther—Harper's.
Inside Asia; Gunther—Harper's.
Headline Books—Foreign Policy Association.
Oxford Pamphlets on International Affairs—Oxford Press.
The American Primers—University of Chicago Press:
- Business and Government.
- Friends or Enemies.
- Jobs or the Dole.
- Money.
- Strikes.
- The Farm Business.
- You and Machines.
- Youth in the Depression.

Teacher's Reference:

Our Own Age; Beard-Robinson-Smith—Ginn.
As for Sections A and B.

Magazines, Periodicals, Bulletins:

House of Commons Debates—King's Printer, Ottawa.
Canadian Geographic.
Reader's Digest—Pleasantville, New York.
Monthly News Sheet and *Bulletins* of the League of Nations. Society, Canada—Literature Service, League of Nations. Society, Ottawa.
World Affairs: Current Events for Canadian Schools—23 Grenville St., Toronto (Monthly).
Canadian Comment—Current Publications Ltd., 23 Scott St., Toronto (Monthly).
World Wide—Witness Publishing Co., Montreal (Weekly).
Current History—229 West 43rd St., New York (Monthly).
Bulletin of International News—Royal Institute of International Affairs, Chatham House, St. James' Square, London, England.
Bulletins of the Dominion and Provincial Government Departments.
Health Bulletins issued by the Metropolitan Life Insurance Co., Ottawa.
The Beaver, a magazine published by the Hudson's Bay Co.
Newspapers.

Suggested Classroom Equipment

Movable desks or tables.
Tables for exhibits.
Bulletin boards in every available space.
Ample blackboard space.
Classroom library cupboard.
Stand for newspapers and magazines.
Filing cabinet for clippings and pictures.
Wall maps, charts and globes.
Newsprint paper, 24″×36″.
Coloured chalk.
Tempera colours.
Projection lantern.
A good dictionary, an atlas, and an encyclopaedia.

SECTION A: OUR COUNTRY AND ITS PEOPLE

(GRADES VII AND VIII)

Problem 1.—How Canada Has Attracted Many Peoples.

Canada is a land of great natural wealth. Despite its rigorous winter climate it has proved a Mecca for many thousands of settlers from distant corners of the earth. In this Problem three topics will be examined: (1) What attracts settlers to Canada; (2) What are the racial origins of these settlers; (3) Should Canada provide homes for many of Europe's people?

A.—*The natural wealth of Canada has attracted settlers*: A brief survey of the important natural resources of Canada, including the more obvious natural features; the wealth of our seas, forest, soil and mines.

B.—*Canada is the direct heir of the culture of many races*: Comparison of Canadian Indians and Eskimo with Canadians of European and Asiatic stock as to numbers; survey of school and community population with regard to racial origin; extend the survey to the Province and to the Dominion.

C.—*How Canada was found;*

1. EUROPE IN THE MIDDLE AGES: Low standard of living as compared with the Far East; comparitively crude type of agriculture; trade only slightly developed. Stimulation of trade with resultant rise in standards of living due to Crusades, Moorish civilization in Spain, etc.; fabulous wealth of Far East; compare with tales of gold, oil, etc., in modern "booms"; travels of Marco Polo and others (briefly).
2. TRADE ROUTES TO THE FAR EAST: Physical and climatic difficulties to be overcome leading into a survey of chief physical and climatic features of EURASIA; strategic location of Constantinople, Alexandria, Genoa, Venice, Amsterdam, etc.
3. TRADE IN SPICES: Portuguese attempts to reach India and the Spice Islands (Moluccas and Philippines); Diaz; Vasco de Gama. Spanish voyages, Columbus and accidental discovery of New World; French and English voyages, Cabot, Cartier, and others. Avoid too much detail as the story phase of this period will have been covered in Division II; see item 3 of minimum requirements.

Time: 20 class periods and 3 open-forum periods.

MINIMUM REQUIREMENTS:

1. A knowledge of the important physical and drainage features and climatic variations of Canada; of EURASIA.
2. An appreciation of the attractiveness of Canada to people of distant lands.
3. An appreciation of the significance of the rise in the standard of living since Mediaeval Times.

SUGGESTED PUPIL ACTIVITIES:

1. Pupil reports on topics suggested by the outline.
2. Development of maps.
3. Develop graphs and diagrams showing racial distribution in Canada.

4. Family histories by pupils who can secure reliable information on family origins.
5. By pictures contrast Mediaeval and Modern methods of transportation.
6. Report on development of compass, astrolabe and other instruments of navigation.
7. Open forum: Which is more beneficial to mankind: the discovery of new lands or of new things in science?

CORRELATIONS:

Health: How medicine was improved by contact with Eastern doctors.

Science: What is the debt of science to the wise men of the East?

REFERENCES:

Our Country and Its People—McDougall and Paterson.
The Story of Britain and Canada—Paterson.
A World Geography for Canadian Schools—Denton and Lord.

Problem II.—How Canada Became French and Then English.

In this Problem there should be developed the story of how Canada's two most important racial stocks crossed the Atlantic. Concurrently with this story there should be a survey made of the geography of Britain and France and a more thorough study made of the geography of Eastern Canada and Eastern United States.

FISH AND FURS

1. *Geography and earlier history of France in outline*: Location, extent, surface and climate. France in Middle Ages; contrast with England of same period; contrast both countries just prior to the French Revolution as to social and economic conditions. Natural resources; occupations of the people; their habits of living and thinking. Modern commercial and industrial centres.
2. *New France develops from trading post to colony*: Brief sketch to review earlier years under Champlain and the opening of the interior by La Salle, La Vèrendrye; the founding of the H. B. Co. Arrival of women in 1665 sets stage for vigorous development of colony under the direction of Talon; social life of the people; their occupations; trade with France and other countries. How French imperialism retarded development.
3. Contrast location, surface, extent and climate of British Isles with Alberta (avoid details). Religious, political and economic conditions in Tudor and Stuart times in England which caused migration to America. Atlantic seaboard colonies established; plantations as well as furs. Geography of Atlantic coastal plain. Comparison of growth of French and English colonies in America; rivalry in fur trade (Indians); wars between French and English (briefly); Canada becomes British. Trouble between English Atlantic Colonies and Mother Country; War of American Independence (briefly); coming of Loyalists to Canada.

4. Scottish and other settlements in Maritime Provinces Ontario, on Red River, etc. Pioneer life. Farmer organizations come into being to improve social and economic status of rural dwellers, e.g., the Grange, etc.

Time: 40 class periods and 4 open-forum periods.

MINIMUM REQUIREMENTS:

1. An increased knowledge of the main geographical features of Eastern Canada and Eastern United States.
2. An increased knowledge of the natural resources of Canada, Eastern U.S.A., and France and their relation to the activities of the people.
3. An appreciation of the qualities of character demanded of the pioneer in any age.

SUGGESTED PUPIL ACTIVITIES:

1. Committee and individual investigations and reports.
2. Writing of plays, stories and poems based on dramatic episodes of the period.
3. Develop illustrations depicting the social life of the period.
4. Pupils of Loyalist descent relate family histories.
5. Open forum:

   Where there no unemployed in pioneer times?

   Should we scrap the machinery characteristic of our industrial civilization and live as our fur-trader ancestors lived?
6. Contrast old and new fishing and fur-getting methods.

CORRELATIONS:

1. Health: Health and sanitation in pioneer homes and communities; control of disease; hospitals, etc.
2. Science; lack of modern conveniences due to ignorance of how science can be applied to improve human living.

REFERENCES:

Our Country and Its People—McDougall and Paterson.
The Story of Britain and Canada—Paterson.
A World Geography for Canadian Schools—Denton and Lord.
Our Country Past and Present—Nida and Webb.

Problem III.—How Canada Then Received Settlers From Many Countries:

This is an example of the influence of a few basic inventions on human living and of how man by closer co-operation solves many of his most complex problems.

GRAIN FARMING

1. *Vast extent of prairies*: Lack of adequate natural transportation facilities as compared with Eastern Canada; soil and climate suited to production of grain; large-scale transportation essential; the means already at hand through work of inventors in England and the United States. Brief sketch of

Industrial Revolution in relation to transportation; early steam engines; travelling steam engine on land and water George Stephenson and others; first Canadian Railway.

2. *Union of eastern provinces under one government brings idea of including the western area to the Pacific and makes this possible*: Taking over of the west from the H.B. Co. Mounted Police; promise of railway to British Columbia; the problem of financing a transcontinental railway; Macdonald, Stephen, Smith and others; period of construction. Misunderstanding by Metis and Indians; uprising in 1870 and 1885; Provinces of Manitoba, Saskatchewan and Alberta come into the Confederation.

3. *Development of large-scale farming in the West*: Compare with Western United States. New farming methods introduced to overcome special difficulties; early ripening varieties of grain; dry-land farming; irrigation; improved farm machinery; the problem of the Dry Belt. Competing railway lines in West open up new areas; resources other than grain tapped incidentally, coal, oil, etc.

4. *Homesteading*: Overcrowding in industrialized Europe; free lands in Western Canada; compare with Western United States; end of homesteading in United States; enormous influx of settlers into Canada; effect of such development upon Western Canada and upon farmers and town workers in European countries. Effect on the farmer of the control of the grain trade by the railway and elevator companies; organized effort of farmers breaks monopoly control, e.g., U.G.G., U.F.A., etc.

5. *Geography of Cordilleran Region*: Finding of gold in California and then farther north; B.C. gold "rush"; gold, fish and lumber combine to attract settlers. B.C. a Province; railway speeds up development of natural resources, Panama Canal adds new trade route. Asiatic immigration.

6. *Geography of Laurentian Plateau*: Discovery of Mineral wealth in Yukon, Northern Manitoba, Ontario, Quebec, N.W.T., Alberta coal and oil, etc. Rise of new manufacturing industries of Eastern Canada based on mineral products.

7. Review of geographical features, natural resources, industries and commercial centres of Canada.

Time: 40 class periods and 4 open-forum periods.

Minimum Requirements:

1. An increased knowledge of the geographical features and natural resources of Canada.
2. An increased knowledge of the location and importance of the more important centres of population in Canada.
3. An appreciation of the social significance of the development and speedier and cheaper means of transportation.
4. An appreciation of the part played by our native born Canadians and immigrants in the development of the West.
5. Development of an appreciation of the interdependence of manufacturing areas and agricultural and mineral areas.

Suggested Pupil Activities:

1. Committee investigations and reports.
2. History of the local community.
3. Display of the natural resources of the local community.
4. Development of special maps, graphs, etc.
5. Draw a series of pictures to show contrasts in ways people make a living in Canada.
6. Draw a series of pictures to show the contrast between the West of 1900 and of to-day.
7. Open forum:
   (1) Are there any parts of Canada that can be economically independent of every other part?
   (2) What are the possibilities that Canada may rank as one of the great nations of the world?
   (3) What are the chances of settlement in the Far North now that a highway has been built?
   (4) What are the possibilities of the airplane in a country like ours?
   (5) What are the possibilities of Canada becoming a producer of substances needed in a world in which synthetics will play a great part?
   (6) What truth is there in the notion that Canada will be on the great air highways of the world?
8. Contrast old and new methods of lumbering, fishing, mining, etc.
9. Study new uses made of forests products: wood pulp, paper, rayon, etc.

Correlations:

1. Science
   (a) How science is being applied to the solution of the problems of the western farmer.
   (b) How science has built up many industries using Canada's raw materials in new and strange ways.
2. Health: Civilization and its effect on the health of the Indian.

References:

Our Country and Its People—McDougall and Paterson.
The Story of Britain and Canada—Paterson.
A World Geography for Canadian Schools—Denton and Lord.

Problem IV.—The Homelands of our European and Asiatic Settlers.

This problem involves a survey of the more important European and Asiatic countries, especially of those contributing most directly to the development of Canada. An effort should be made to develop a picture of the social life of those older lands in order to gain some appreciation of the readjustments which must be made by newcomers in their homes across the seas. It is suggested that social and economic conditions in the countries

mentioned below be studied in some detail and that other countries be taken by committees as time permits. Do not spend too much time on geographical aspects.

1. *Scandinavian Countries*: Location, extent, surface and climate. Brief historical sketch, democratic government; Iceland. The people, their occupation, natural resources, habits of living and thinking; development of co-operative enterprise; Commercial and industrial centres.
2. *Germany*: Location, extent, surface and climate. Union of German states. The people, their occupation, habits of living and thinking; agricultural and mineral resources; commercial and industrial centres.
3. *Union of Soviet Socialist Republics (Russia)*: Location, extent, surface and climate. Social and economic conditions prior to Revolution. The people, their occupations, habits of living and thinking; agricultural and mineral resources; commercial and industrial centres.
4. *Italy*: Location, extent, surface and climate. Unification of Italy. The people, their occupations, habits of living and thinking; natural resources; commercial and industrial centres.
5. *China*: Location, extent, surface and climate. Historical sketch; civil wars; relation with European nations and Japan in more recent times. The people, their occupations, habits of living and thinking. Agricultural and mineral resources; commercial and industrial centres.

   OR

   Japan: Location, extent, surface and climate. Historical sketch. Industrialization along European lines compared with China. The people, their occupations, their ways of living and thinking. Natural resources. Commercial and industrial centres.
   (Japan may be left to Grade IX, Problem 6. In dealing with China, stress Japan's shortage of minerals needed by an industrial nation.)
6. Review of main geographical features of Eurasia.
   Time: 50 class periods and five open-forum periods.

Minimum Requirements:

1. An increased knowledge of the geography of Eurasia.
2. An appreciation of the national qualities of our more recent Canadian citizens of European and Asiatic descent.

Suggested Pupil Activities:

1. Committee investigations and reports.
2. Further family histories, especially where the national background can be pictured vividly by costumes, dances, folk songs, etc.
3. Development of animated product maps.
4. Load ships for Canadian ports with products typical of the countries being studied.
5. Collect pictures illustrating industrial and social life of people being studied.

6. Open forum:
   (1) What are the possibilities of forming a United States of Asia?
   (2) Would such a Unit be self-contained?
   (3) Would it become very powerful?
7. Why are Japan and Russia, Japan and China, not on the friendliest terms?

CORRELATIONS:

1. Art: Study some of the typical art and architecture of the people mentioned in the outline.
2. Science: To what extent are the people mentioned in the outline using science to solve their problems?
3. Health: Compare the countries mentioned with respect to their health and sanitation standards.

REFERENCES:

Our Country and Its People—McDougall and Paterson.
World Geography for Canadian Schools—Denton and Lord.
Changing Civilization in the Modern World—Rugg.

Problem V.—How Canadians Live Together.

Though of many different racial stocks, Canadians live, work and play together in most complete harmony. Before we leave them let us make a survey of those local institutions which exert a Canadianizing influence.

The Community: Its needs, e.g., health, police and fire protection, education, etc., how these are controlled. Municipal (local) government. Importance of willing and intelligent co-operation in all matters affecting the community; resultant good effect of such co-operation on the whole of Canada so that its material resources may be developed or conserved wisely by and for intelligent people.

Time: 20 class periods and 4 open-forum periods.

MINIMUM REQUIREMENTS:

1. A knowledge of how the community is controlled and regulated.
2. An appreciation of the importance of intelligent co-operation between citizens and governments.

SUGGESTED PUPIL ACTIVITIES:

1. Pupil investigation and reports.
2. Collection of pictures depicting varied phases of community activity.
3. Open forum.
   (1) Should the individual citizen assume any responsibility for the improvement of the community?
   (2) How may we as pupils improve our community?

CORRELATIONS:

1. Science: How science is being called upon to solve problems of community living.

2. Art: How the community may be made more beautiful, e.g., flowers and trees about the school.

References:

Our Country and Its People—McDougall and Paterson.
A Reader in Canadian Civics—Wallace.

SECTION B: OUR EMPIRE AND OUR NEIGHBOURS

(Grades VII and VIII)

Problem I.—Introductory: A Pre-view of the Empire.

This problem introduces the major geographic divisions of the Empire with their diverse races, colours and creeds. In Section A the problem was the assimilation of Canada's people into a homogeneous whole; in Section B this problem assumes another form.

(a) *The Heart of the Empire*: A visit to London, Buckingham Palace, Downing Street, the Imperial Parliament in session, Lombard Street, the Pool, British Museum, Shakespeare and Dickens, etc.

(b) *Geographical Features of the British Isles*: Location and extent, coastal features, surface and drainage, climate, agricultural and mineral resources.

(c) *Industrial Britain*: Industries, visits to mines, factories, fishing fleets, ship-building yards; Liverpool, Southampton, Portsmouth, Glasgow, Belfast, Londonderry, Newcastle and Cardiff, etc., as typical industrial and shipping centres.

(d) *Britain across the Seas*: The major divisions of the Empire; diversity of race, colour, language, creed, culture.

Time: 20 class periods and 3 open-forum periods.

Minimum Requirements:

1. A more extensive knowledge of the geographical features of the British Isles.
2. A knowledge of the location of the more important divisions of the Empire.
3. An appreciation of the problem and responsibility of directing the affairs of the varied human beings who constitute the British Empire.

Suggested Pupil Activities:

1. Committee investigations and reports.
2. Collecting of pictures illustrating some special study.
3. Related map work—formal and animated.
4. A pagent of the peoples of the Empire.
5. Open forum:
   (1) "Could the British Empire become a self-contained economic unit?"
   (2) "What would be advantages and disadvantages of such a course?"

CORRELATIONS:

Literature: Where the great masters of English lived and worked.

Art: British Art and Architecture. British landscapes and seascapes.

Science: The discoveries of such men as: Harvey, Newton, Farraday, Darwin, etc.

Dramatics: Creation of a simple pageant.

Language: Oral and written reports.

REFERENCES:

Our Empire and Our Neighbours—McDougall and Paterson.
World Geography for Canadian Schools—Denton and Lord.

Problem II.—How Britian Became the Centre of World Trade.

This Problem involves Britain's development as a sea-power (commercial and naval) and the founding of the Colonial Empire.

(a) *Britain changes from an agricultural to an industrial civilization*: In the middle ages a land of manors; typical features of manor life; the economic factors which led to the breakdown of feudalism; Black Death; enclosures and sheep raising. Growth of village handicrafts. Development of improved textile machinery; introduction of power machinery and capital; factories replace home and village industry.

(b) *Sea Power and World Trade*: Trade and commerce prior to Industrial Revolution; Elizabethan and Stuart traders and sailors; the trading companies, East India, H.B. Co., Virginia, London, etc.; rivalry with Spain, Holland and France; increase in output of manufactured goods due to Industrial Revolution brings marked increase in trade; the steamship. Increasing dependence on distant lands for raw materials and food; chief imports and sources. Extent to which Commonwealth is self-contained. Control of trade routes of world under modern conditions.

Time: 30 class periods and 3 open forum periods.

MINIMUM REQUIREMENTS:

1. An appreciation of how industrialism has transformed Britain.
2. An appreciation of the important part played by sea-power in Britain's expansion.
3. A knowledge of the chief sources of Britain's raw materials and foodstuffs.
4. A more extensive knowledge of the location of the major industrial centres and seaports of Britain.

SUGGESTED PUPIL ACTIVITIES:

1. Pupil reports on topics suggested in the outline.
2. Preparation of animated time-lines showing the development of (1) Textile production; (2) Iron and steel production; (3) Transportation on land and in air; (4) Expansion in exports and imports.

3. Develop maps showing Empire at different periods.
4. Collect or draw pictures of ships of different periods loaded with typical English exports or imports of the same periods.
5. Open forum:
   (1) To what extent has world discovery and trade been responsible for bettering the life of all mankind?
   (2) To what extent can all the parts of the British Empire contribute to further bettering the lot of mankind?

CORRELATIONS:

Science: How man was turning to Science to find a solution of his industrial problems.
Art: The sailing ship in Art.
Health: Scurvy, the enemy of the sailor.
Language: Oral and written reports.

REFERENCES:

Our Empire and Its Neighbours—McDougall and Paterson.
The Story of Britain and Canada—Paterson.
A World Geography for Canadian Schools—Denton and Lord.
Changing Civilization in the Modern World—Rugg.

Problem III.—How the Colonial Empire Was Founded.

This is the story of Britain's continued expansion overseas as her industrial development increased.

(a) To preserve continuity, review briefly the colonies in America.
(b) *In Europe*: Ireland is Britain's oldest possession; Irish resent conquerors; frequent rebellions. British efforts to improve relations; Irish Free State and Northern Ireland. Resources, industries and commercial centres.
(c) *In Asia*: India prior to the British conquest; people, customs, religion. Geographic and climatic features; agricultural and mineral resources. The B.E.I. Co., Clive, Hastings, the Mutiny. Transformation under British control; introduction of European industrialism. Some of the people of India want self-government. Importance of India to Britain as a customer. Other Asiatic possessions.
(d) *In Africa*: Geographic and climatic features which account for the former term "Dark Continent" (unknown); Livingstone, Stanley, Mungo Park, etc. Dutch and British in Union of South Africa (settlement, surface, climate, resources). Cecil Rhodes, Botha, Smuts; acquisition and value of British Equatorial Africa. Other European powers share in division of Africa, especially France, Germany, Italy, Portugal and Spain, and Belguim; why European nations want colonies in Africa.
(e) *In Australia and New Zealand*: Discovery of Australia by Tasman, Dampier and Cook; the settlement of the eastern coastal plains. Extent, surface and drainage; exploration of interior. Climate and agricultural industries. Gold and other mineral wealth. Industries and industrial and commercial centres. Discovery of New Zealand; the Maoris;

extent, surface and climate. Natural resources; commercial centres. Pacific Islands as bases for air ports and cable stations.

Time: 40 class periods and 3 open forum periods.

MINIMUM REQUIREMENTS:

1. A knowledge of the more important geographical features of each of Britain's more important overseas possessions.
2. A knowledge of the main geographical features of Africa. (This is the first time Africa has been studied in this series.)
3. An appreciation of the interdependence linking Britain and her overseas possessions.
4. A knowledge of the location of the more important industrial centres of the overseas possessions of Britain.

SUGGESTED PUPIL ACTIVITIES:

1. Pupil reports on topics suggested by the outline.
2. Develop animated maps illustrating the industries and products of the more important possessions.
3. Prepare a series of maps showing Africa at different stages in the "partition."
4. Collect pictures and make drawings depicting the social life of the people of India and Africa.
5. Open forum.
   (1) Is Britain in a position to defend Australia and New Zealand against Japanese aggression?
   (2) Is European exploitation being welcomed by the "backward" peoples of the world?
   (3) Are the smaller British possessions (especially the Australian islands) worth the trouble and expense of retaining them as British possessions?

CORRELATIONS:

Dramatics: Dramatizations based on lives of Clive, Livingstone, Rhodes, Cook, etc.
Art: Examine pictures of art and architecture of India.
Science: What is science doing to improve living conditions in India, Africa, Australia?

REFERENCES:

Our Empire and Its Neighbours—McDougall and Paterson.
The Story of Britain and Canada—Paterson.
A Word Geography for Canadian Schools—Denton and Lord.
Changing Civilizations in the Modern World—Rugg.

Problem IV.—How the Development of the United States has Influenced the Development of Canada.

In Section A the story of the settlement of the Atlantic seaboard was developed; the American Revolutionary War and the migration of the Loyalists was considered. Here we pick up the story of the subsequent development of this other English speaking nation.

Picture the tide of American settlement flowing westward, the flood of European immigrants providing cheap labour and the consequent industrial development of the North-Eastern States as the western market developed.

(a) *The Agricultural South vs. the Industrial North* (this section is a brief review of Section A, Problem 2 (3) to preserve the continuity): The geographical features of the Atlantic seaboard. Life on a southern plantation prior to the Civil War; slavery, Climate of the South and its resources and industries. Life in New England in same period; farmers, traders, fishermen. Climate and resources of New England.

(b) *The Opening of the West* (a brief sketch only): The land beyond the Appalachians, its surface and drainage; frontier life. Purchase of Louisiana from France; California secured from Spain; Lewis and Clarke expedition; gold in California; the covered wagon days; the continent spanned; the map fills in. Influence of the gold rush in California on British Columbia. Peaceful settlement of Oregon—British Columbia boundary dispute typical of how Canada and the United States settle all their differences. (Do not study all the boundary disputes and agreements.)

(c) *New methods and new machinery transform the West*: The West of the ranching days (cattle). Homestead Act of 1862; rapid growth of settlement after Civil War. New Farming methods follow on the development of such improved machinery as Deere's plow, seed drill, McCormick's reaper, threshing machines, etc. Productivity of the western farm lands attracts European settlers and provides a market for eastern industrial states. Canadian farmers adopt American farming methods. Rapid development of Canadian West after end of homesteading in United States. Struggle of American farmers against monopoly control by transportation companies. Modern problem of erosion and floods; drought and soil drifting (as in Western Canada).

(d) *Industrialization of North-East and Central States*: natural resources of this region (coal, iron, water powers, etc.). The textile industry of the New England States. New inventions which accelerate industrialization of this area, e.g., improved methods of producing steel, the cotton gin, the sewing machine, vulcanization of rubber, conversion of water power into electrical power, the internal combustion engine; development of railways opens up resources of West and creates markets. Development of large scale production of standardized goods. New industrial centres. Spread of American industrial methods and branch factories into Eastern Canada to escape tariff (National Policy of Sir John A. Macdonald). Rapid development of Canadian West after end of homesteading in United States. Trade between Canada and the United States in raw materials and finished products; the trade agreement of 1936 (briefly).

(e) If time permits, have committee surveys along similar lines made of Mexico, the West Indies, British Guiana, and the A.B.C. countries of South America.

Time 35 class periods and 3 open-forum periods.

Minimum Requirements:

1. A general knowledge of the natural features of the United States, more particularly of the portions nearest Canada.
2. An appreciation of how the social and industrial development of the United States is affecting Canada.
3. An appreciation of the vital importance to Canada and the United States of cheap transportation facilities.

Suggested Pupil Activities:

1. Discussion of pupil reports on topics suggested in the outline.
2. Development of appropriate animated maps on which will be located primary products and industrial areas.
3. Pictures of new farm machinery developed to open up Canadian and American West.
4. Open forum:
   (1) Should Canada have offered special inducements to young Canadians to attract them to the West when they began to go to the North Eastern States in large numbers?
   (2) Would Canada be better off to-day if there had been no tariff barrier to trade between Canada and the United States during the last fifty years?
   (3) Will the development of the St. Lawerence seaway to allow ocean steamers to come directly to Fort William, Duluth and Chicago be beneficial or harmful to Canada?

Correlations:

Science: How the development of scientific knowledge has developed the natural resources of Canada and the United States.

Mathematics: Development of appropriate statistical graphs.

Dramatics: Development of dramatizations based on pioneer days.

Language: Oral and written reports.

References:

Our Empire and Its Neighbours—McDougall and Paterson.
Our Country Past and Present—Nida and Webb.
A World Geography for Canadian Schools—Denton and Lord.
Rich Land, Poor Land—Stuart Chase. (For teachers.)

Problem V.—Growth of World Industrial Competition.

Industrialism meant that there was a much greater output of goods to sell. Therefore there was a need for (1) raw materials, and (2) markets. As the available areas from which raw materials could be easily and cheaply obtained became fewer, the rivalry between nations for these areas (colonies) became more intense; the same areas were also markets for finished products. An excellent example of this rivalry is seen in the partition of Africa among the European powers (see Problem III).

(a) Brief review of Britain's industrial leadership to preserve continuity.

(b) *Influence of Industrial Revolution on Germany*: See Section A for early history; Germany a late starter in the industrial and colonial race due to lack of unity until after 1870; favourable location for European trade; deposits of coal and iron; development of scientific knowledge and invention; rapid industrial development; only available colonial areas left were in Africa and China; trade rivalry with Britain; stress laid on development of a large army and navy to protect her interests at home and abroad.

(c) *Influence of Industrial Revolution on Japan*: See Section A for early history; reluctant acceptance of western industrial methods; rapid progress due to location near important seaports (markets) of Eastern Asia; resources of coal, oil, and water power; iron in China and Korea; seizure of Korea and other parts of China; leadership in silk and other textile industries owing to low cost of production; standard of living, trade rivalry with Britain and other industrial nations; stress laid on the development of a large army and navy to protect her interests at home and abroad.

(d) *Influence of Industrial Revolution on France*: See Section A for early history. As France became industrialized new materials and markets were needed; colonies in Northern Africa and Far East; development of army and navy to protect her interest at home and abroad.

(e) *Colonial and Commercial Rivalry cause a World War*: Growth of fear, jealousy and suspicion among leading industrial nations: secret alliances; armaments race; growth in popular demand for permanent peace; the immediate causes of World War; sketch of main events; crushing of first German drive on Paris gave Allies time to mobilize resources of man and industrial power which were immensely greater than those available to central powers; world-wide nature of struggle; privations of non-combatants; part played by Canada and other parts of Empire; sea power; revolution in Russia; Peace of Versailles; gain and loss.

Time: 25 class periods and 2 open-forum periods.

Minimum Requirements:

1. An appreciation of the effect of the Industrial Revolution on the great world powers.
2. An appreciation of the apparent need for colonies and raw materials.
3. An appreciation of the influence of commercial rivalry and national hatreds (which were not permitted to slumber) in bringing on World War.
4. A knowledge of some of the main events of the World War and of the part Canada played in the struggle.

Suggested Pupil Activities:

1. Discussion of reports prepared by pupils.
2. Draw maps of pre-war and post-war Europe.

3. By means of a map show that the Central Powers, after September, 1914, were in the position of a besieged fortress cut off from outside resources.
4. Open forum:
   (1) What problems must be solved in readjusting the boundaries of the European countries?
   (2) Is it possible to establish the "United States of Europe"?

CORRELATIONS:

Science: How science influenced the course of the Great War.
Language: Oral and written reports.
Mathematics: Graphical representations of men, power, etc.

REFERENCES:

Our Empire and Its Neighbours—McDougall and Paterson.
A World Geography for Canadian Schools—Denton and Lord.
The Story of Britain and Canada—Paterson.
Changing Civilizations in the Modern World—Rugg.
Changing Governments and Changing Cultures—Rugg.

Problem VI.—Canada and Commonwealth Trade.

Canada is a leading member of the British Commonwealth of Nations. This association brings certain benefits, chiefly in the form of trade and, to some extent, protection. On the other hand, membership implies certain responsibilities.

(a) *Varied and extensive resources of the Commonwealth*: The important primary products of each of the main political divisions. Extent to which Commonwealth is self-dependent as regards food products and raw industrial materials.

(b) *Interdependence as regards trade*: The highly industrialized areas and the primary producing areas; trade advantages and disadvantages as between various units of Commonwealth; the Ottawa Trade Agreements (general principles only); (omit all but most essential details as minor details will change with frequent revisions).

(c) *Trade routes and communication facilities*: The important trade routes of the world; the important present and prospective air routes; communication by cable and radio; importance of some of the smaller possessions along the trade, air and communication routes. Empire defence and the problem of the control of trade and communication routes under modern conditions; world peace essential to security and prosperity of Commonwealth.

Time: 20 class periods and 2 open-forum periods.

MINIMUM REQUIREMENTS:

1. A knowledge of the location of the main producing areas of certain essential primary products.
2. An appreciation of the interdependence of the units of the Empire.
3. An appreciation of the important place Canada occupies in Empire trade.
4. A knowledge of the location of the main trade routes of the Empire.

Suggested Pupil Activities:

1. Report on topics suggested in the outline.
2. Develop appropriate products and trade maps.
3. On the globe locate the key points for inter-Empire air routes.
4. Open forums:
   (1) What is the difference between the "British Commonwealth of Nations" and the "British Empire"?
   (2) To what extent is the British Commonwealth suited to become the nucleus of a greater world empire? To what extent would such an empire offer security and a better chance for self-realization to new members than they now have?
   (3) To what extent would such an empire make for world peace and prosperity?
   (4) What are some of the problems that would have to be solved in establishing such an empire?
   (5) Would it really be an empire, or a federation of states?
5. Develop some appropriate cartoons.

Correlations:

Mathematics: Develop trade graphs of various types.
Language: Oral and written reports.
Science: How is science influencing the development of inter-Empire trade?

References:

Our Empire and Its Neighbours—McDougall and Paterson.
A World Geography for Canadian Schools—Denton and Lord.

Problem VII.—Our Own Province.

After a world tour to survey the Empire, we are back in Alberta. Just what has Alberta to contribute to the wealth and development of the Empire?

(a) *Natural resources of Alberta*: Production of those natural products distinctive of Alberta; how such are utilized and where.
(b) *Industries of Alberta*: Extent to which Alberta's natural products are industrializing Alberta; future possibilities.
(c) *Interdependence of Alberta with other Provinces*: Extent to which Alberta is dependent on other Provinces for a market and as a source of raw materials; economic imperialism exhibited in relations of Western to Eastern Canada.
(d) *Government of Alberta*: Distinctive features of the Provincial system of Government. (Avoid detail on functions of each department.)

Time: 20 class periods and 2 open-forum periods.

Minimum Requirements:

1. A review of the natural resources and industries of Alberta.

2. An appreciation of the interdependence of Alberta and the other Canadian provinces.
3. A knowledge of the distinctive features of the government of Alberta, legislative powers of the Province; important sources of revenue, chief expenditures.

SUGGESTED PUPIL ACTIVITIES:

1. Reports on topics suggested in the outline.
2. Collect pictures of Alberta's resources and industries.
3. Make collections of natural resources of the community.
4. Load freight trains for round-trips to Ontario.
5. Ship carloads of Alberta wheat to Europe by different routes.
6. Open-forum: Could Alberta develop its local industries so as to become independent economically of other provinces of Canada?
7. Develop appropriate cartoons.

CORRELATIONS:

Mathematics: Develop graphs of various types.
Language: Oral and written reports.

REFERENCES:

Our Empire and Its Neighbours—McDougall and Paterson.
A World Geography for Canadian Schools—Denton and Lord.
A Reader in Canadian Civics—Wallace.

SECTION C: THE WORLD OF TO-DAY—GRADE IX

Problem I.—Introductory: How the Environment Affects Living.

This topic is to be developed as a preview of the work for the year. Extensive teaching of the suggested content, item by item, is not to be attempted. The sub-topics indicate how the theme may profitably be developed. The purpose is to stimulate discussion by the pupils, and to open up problems that will be treated more elaborately as the course develops.

(a) *Influence of Economic Factors*: Influence of the natural resources, climate, transportation facilities, location, etc., on the occupations of people, e.g., in the local community, in the Province and Dominion, in selected areas of the world at large.

(b) *Influence of Geographic Factors*: Survey of world geography; land and water masses; typical surface features of each of the continents. Distribution of world population; reasons for congestion in three areas.

(c) *Influence of Social Factors*: Importance of high standard of living; varying standards in world; relationship of density of population and resources; to standard of living; problems arising from congested population; dangers of international conflict; emigration a former remedy; scientific development of formerly useless areas a present remedy.

(d) *Influence of the Machinery of Control*: Why and how the government must regulate living; contrasting forms of government in Canada, municipal, provincial and federal; contrasting types among the great nations, e.g., France a Republic, etc. (Avoid details, but do try to have pupils understand that each nation must work out a form of government which is most suited to its ideas and ideals.)

Time: 12 class periods and 3 open-forum periods.

MINIMUM REQUIREMENTS:

1. A knowledge of the location of the more important industrial nations and of the minerals and other raw materials upon which they are dependent.
2. A review of the main geographical features of the continental masses.
3. An appreciation of the effect of man's physical environment on his social development and organization.
4. An appreciation of man's ability to solve his problems when he assembles his intellectual and material resources for the purpose.

SUGGESTED PUPIL ACTIVITIES:

1. Present reports and illustrative material on the topics suggested in the outline.
2. Prepare a homolosine projection map showing the distribution of the peoples of the world.
3. Class discussion on the extent to which vast areas in Africa and South America could be made suitable for habitation by Europeans were one year's expenditure on armaments devoted to such a purpose.
4. Open forum: "Light not heat the governing principle in all discussions"; How to conduct a public meeting, duties of various officers; How to draw up a Constitution for a Social Studies Society; Is dense population a menace to World Peace?
5. Collect and develop cartoons suggested by the outline.

CORRELATIONS:

Science: How science is aiding man to utilize the waste and inhospitable regions of the world.
Language: Oral and written reports.

REFERENCES:

The World of Today—McDougall and Paterson.
World Geography for Canadian Schools—Denton and Lord.
Manual in Geography I—Hilton.
A Reader in Canadian Civics—Wallace.

Problem II.—How Industrialism is Revolutionizing Home and Community life.

In this section the attentions of the pupils should be directed to the everchanging environment in which they live, and to the forces that effect change. Because of a few recent inventions, the child's

social environment of to-day is very different from the social environment of his parents when they were children. Marked as the improvement in the general conditions of living has been, conditions still exist in rural and urban communities that challenge the intelligence and good-will of present and future citizens.

NOTE.—There should be a definite correlation with General Science and with Health Education at this point. For the purpose of Social Studies not much detail is required. More may be introduced in the Science or Health class. The important requirement here is that pupils appreciate the fact that the community has organized itself to provide efficiently certain essential services. The Health elements of sub-section (c) may be grouped under one heading: Responsibility assumed by the government for the health of the community. Then any necessary *detail* may be taken in the Health periods.

(a) *Living Conditions in Rural Areas* (Pupil investigation): Rural homes as they are; rural homes as they should be; water supply and sanitation (briefly); labour-saving equipment in the rural home—sewing machine, cream separator; washing machine, etc. Labour-saving machinery on the farm. Importance of electrical power in rural areas; why electrical power is not available in a province having extensive power resources. Community social services. Hospitals and clinics (briefly); education; recreation; libraries; the church. Community government (a review, see Section A). The breaking down of rural isolation by the automobile, newspaper, telephone, radio, rural mail delivery and improved roads; possibility of making rural life even more attractive (class discussion).

(b) *Living Conditions in Large Centres of Population* (Pupil investigation): Types and qualities of homes (individual houses, apartments, slums); provisions of modern conveniences in homes; improvement of housing (new materials used; scientific planning; insulation; heating; air-conditioning; lighting; decoration; furnishings); improvement of outside surroundings. City planning. General effects of living conditions in family life (class discussion).

(c) *Social Services Reach Highest Point in Cities* (Pupil investigation): Police and fire protection; streets; public utilities—water, light, gas, power, transportation, telephones; the ownership of these utilities. Sanitation, including disposal of garbage and sewage, inspection of stores, food, milk, water, etc. Health services—the Public Health Board; the Public Health Clinic and its value to the community; hospitals, how controlled and financed and their value to the community. Pure food legislation; adulteration of food and drugs, misleading advertising. Education; libraries; recreation; voluntary service organizations; the church; community government (review: see Section A).

(d) *Rural and Urban Problems* (Class discussion led by teacher): Over-expenditure and over-capitalization during the land and production boom of the war and post-war

years; high pressure salesmanship of machinery and live stock; instalment buying; collapse of prices in 1929-30; mortgages and interest rates; local taxation; development of co-operative purchasing and marketing, e.g., the Wheat Pool.

Time: 20 class periods and 4 open-forum periods.

MINIMUM REQUIREMENTS:

1. An appreciation by urban children of rural home and community life, and by rural children of urban home and community life.
2. An appreciation of the part played by the automobile, the telephone, the radio, and the press, in developing a superior type of rural and urban culture.
3. An appreciation of the fact that there are conditions in both rural and urban life which present a challenge to the citizens of today.
4. A knowledge of how the community guards the health of its citizens.
5. A knowledge of how the community is governed.

SUGGESTED PUPIL ACTIVITIES:

1. Pupil reports on topics suggested in the outline.
2. Representation by pictures of changes in rural and urban homes due to modern inventions.
3. Development of appropriate cartoons.
4. Drafting of plans for the "ideal" kitchen, etc.
5. Planning of grounds about a home.
6. Prepare a play demonstrating the isolation of the pioneer home in time of illness.
7. Open forum: (1) Discuss the advantages and disadvantages of instalment buying. (2) As prosperity returns to our farms and cities what precautions can be taken to prevent a repetition of the extravagance of the boom years before the depression? (3) Should street railways be publicly or privately owned?
8. Reports on the contributions to human welfare made by such leaders as Jenner, Pasteur, Lister, Simpson, Curie, Florence Nightingale, Reid and Banting.

CORRELATIONS:

Health: The sections of this problem dealing with health may be discussed during the Health Education periods.

Art: Parts of sections (a) and (b) belong as much to Art as Social Studies.

Dramatics: The play suggested in the "activities" above may be worked out during the Dramatics period.

Language: Oral and written reports.

REFERENCES:

The World of Today—McDougall and Paterson.
A Reader in Canadian Civics—Wallace.

Makers of the Modern World—Searle.
Tides in the West—Alberta Wheat Pool.
Changing Countries and Changing Peoples—Rugg.

Problem III.—How Modern Industrialized Nations Produce and Distribute Goods.

The previous Problem furnishes a picture of how people live in Canada. Here we examine how they work. Due caution must be exercised by teachers that the material of this Problem is presented in its simplest form, in local settings whenever possible. For example, the corporation may be illustrated by some local co-operative endeavour where many people subscribe small sums of money to initiate some rather ambitious undertaking; the "modern trend toward fewer and larger corporations" is exemplified by the tendency in many communities for the independent grocers to amalgamate into local "chains" as a measure of protection against the more powerful national "chains."

If the whole class is taking Junior Business it is suggested that this Problem may be quite properly dealt with there, providing due emphasis is placed on the social implications of procedures and practices employed in modern business.

(a) *Buying and Selling* (Class discussion led by teacher): importance of buying and selling (exchanging goods and services) with the disappearance of the self-contained homes and communities of our grandparents; barter the first and simplest form of exchange; earliest forms of money (standard of exchange), e.g., beaver skins, tobacco, etc.; introduction of metal coinage; banks as places in which to deposit money, and in which to obtain credit; paper currency as a substitute for gold.

(b) *Production of Goods* (Pupil investigation): Select some typical raw materials and trace them through the various processes employed in converting them into saleable articles, e.g., sources of raw material, transformation in a factory, distribution through a wholesaler and retailer, part played by transportation in the process; the price paid by the consumer; how the consumer's purchase price is distributed over the production of the raw material, the manufacturing process, transportation; production for profit vs. production for use under the guidance of a "planned economy" in an endeavour to prevent seasonal unemployment and depressions. If all industries were operated for the benefit of the people as a whole, would it be possible to prevent unemployment, booms and depressions? (Discussion.)

(c) *Large Business and Industrial Organizations* (Class discussion): Production of goods in sufficient quantity for modern needs requires the use of expensive machinery and factories; the corporation as a means of amassing capital from many sources for large-scale production; a simple illustration of how a small business might grow into a corporation; vast resources and far-flung interests of many large corporations; influence of powerful corporations (industrial and financial) on the social, industrial and

political life of the community and nation; modern trend toward fewer and larger corporations, e.g., corner groceries form local chain stores; active interference of government to supervise the methods and practices employed in modern business, e.g., half-holiday by-laws, early closing regulations, fair wage laws; the Stevens Price Spread Commission's Investigations: codes as an attempt by business to regulate its own affairs under government control and supervision.

(d) *International Trade* (Teach): Its importance to all modern nations the long controversy over "free trade" and "protection"; a brief history of this controversy in Britain, Canada, and the United States.

NOTE.—The teacher should guard against spending too much time on this rather difficult topic. A brief treatment will show that nations desire to trade more freely when a mutually satisfactory basis can be arranged. If time permits, the following sub-sections may be attempted:

(1) *In Britain*: Britain's industrial development handicapped by tariffs designed to benefit farmers; the Anti-Corn Law League; the Irish famine; Peel and the Repeal of the Corn Laws; Free Trade; Britain the leading industrial nation until the World War; disruption of trade and loss of markets, owing to tariff barriers erected by other countries; a policy of protection adopted; the Ottawa Trade Agreements to stimulate inter-Empire trade.

(2) *In Canada*: The Elgin agreement of 1854 with the United States; the National Policy of Sir John A. Macdonald; the British Preferential Tariffs; the proposed reciprocity agreement of 1911 with the United States; disruption of post-war trade, owing to tariff barriers erected by other countries; the Ottawa Trade Agreements; the reciprocity arrangement with the United States, 1936; most-favoured-nation agreements with France and other countries. (Omit the details of these trade agreements).

(3) *In Other Countries*: The United States and all European countries erected tariff walls that grew higher and higher, especially during the post-war years, in an effort to check the flood of British machine-made goods which were disrupting home industry where machine manufacture had not been extensively introduced; good and ill effects of the prevailing policies of protection.

Time: 20 class periods and 4 open-forum periods.

MINIMUM REQUIREMENTS:

1. Some appreciation of the part played in community life by such business organizations as the corner grocery, the department store, the general store, the creamery and the co-operative.
2. A general knowledge of the present attitude of Britain, Canada and the United States towards "free trade" and "protection."

Suggested Pupil Activities:

1. Pupil reports on topics suggested by the outline.
2. Preparation of a set of pictures showing how trading methods have developed from barter to money.
3. Committee study of the procedure involved in simple banking operations. Report may be in the form of a dramatization in which pupils learn how to deposit and withdraw money, etc.
4. Pupils report to class on the operations involved in the production of common commercial articles, e.g., tires, books, cotton broadcloth.
5. Debate: *Resolved,* that the trader is more important to the modern world than the farmer.
6. The competitive system argues against government interference in business. Is this consistent with a policy of protective tariffs?
7. Open forum:
   (1) Should chain stores compete against small individual stores?
   (2) Are government regulations of business and industrial methods helpful to the community.

Correlations:

Junior Business: The sections dealing with Buying and Selling, Production of Goods, and Large Business and Industrial Organizations, may be correlated with Junior Business.

Art: Cartoons and drawings constitute a project for the Art class.

Mathematics: Several of the topics will suggest graphs and statistical material for the Mathematics class.

Language: Oral and written reports.

References:

Our World of Today—McDougall and Paterson.
The Story of Britain and Canada—Paterson.
Changing Countries and Changing Peoples—Rugg.

Problem IV.—How Science Affects Living.

This problem is closely related to the two preceding Problems. It aims to give pupils a picture of the revolutionary effects of applying new scientific discoveries to aid in the complex problem of living. The class may work in committees and each committee develop its own report and lead in the discussion of the report. Such discussion should indicate clearly the social influence of each invention or discovery.

(a) *Science in Industry* (Pupil investigation): Story of the Industrial Revolution. Improved methods of producing steel; development of the steam engine, locomotive and steamship (review); development of the internal combustion engine, the automobile and aeroplane. Application of electricity in industrial and social life. Creation of new modes of communication, e.g., telegraph and cable, tele-

phone, wireless, radio, television, wireless transmission of pictures. Perfection of the rotary press and movie camera. Development of the semi-automatic factory.

NOTE.—In this problem the important feature is that children appreciate how certain important scientific discoveries and inventions are revolutionizing social and industrial life. The Problem distinctly does not require any study of the technical details of each discovery and invention. For example, any child can appreciate the tremendous social importance of the internal combustion engine (the gasoline engine), without knowing much about its construction or operation. In making their reports, however, pupils will want to demonstrate their knowledge of radio, or aeroplane, or the movie camera. By all means let such pupils report as exhaustively as time will permit. The making of such a report will be of great value to them as individuals.

Problems that may arise for discussion:

1. Should modern labour-displacing machinery be replaced by machinery that is less automatic?
2. Do the movies, the press and the radio influence public opinion (propaganda)? Should these powerful agencies be controlled by the government?
3. Should power sites be publicly or privately controlled?
4. Is society obtaining the full value of new inventions as they are perfected?
5. What is being done by the government to stimulate research and discovery? What is being done by private interests?

(b) *The Economic and Social Effects of the Application of Science to Industry* (Class discussion led by teacher): Factory slavery as the product of the first phase of the Industrial Revolution; improvements effected by such reformers as Place, Owen, Shaftesbury. Labour Unions and their struggle for recognition in England; strikes and lockouts and their economic and social effects; government intervention to lessen evils of strife between capital and labour, e.g., conciliation boards. Improved factory legislation; regulation of working hours; minimum wage laws; The Workmen's Compensation Acts; unemployment insurance instead of "relief." Employee participation in the ownership of industry; profit sharing. Improved housing conditions for industrial workers; education for an increased leisure.

NOTE.—The teacher should not require the pupils to "learn" the details of this section.

(c) *Sciences makes available Greater and More Varied Supplies of Food* (Pupil investigation): The interdependence of industrial and agricultural nations; the important foodstuffs—wheat, meat, fish, fruit, vegetables from the temperate lands; and fruit, vegetables, sugar, coffee, tea from the tropical and sub-tropical lands. The climatic and soil requirements necessary for the successful production of such foodstuffs. Labour and transportation requirements for successful growth and marketing. The agrarian revolu-

tion. Work of Burbank, Saunders and others in the improvement of plants and animals and in the control of diseases. Use of natural and artificial fertilizers to increase production. Improved transportation facilities open up new markets (e.g., refrigeration opened the markets of the northern hemisphere to Australia and the Argentine). Packing plants; canning of fish, meat and fruit. Faulty distribution of food supplies of the world causes the anomaly of a food surplus in Canada with a famine in China. (Discussion.)

(d) *Science influences Our Clothing* (Pupil investigation): Clothing now a product of the factory; less clothing being worn, especially by office workers. Chief countries producing cotton, wool, silk, and flax; producing and manufacturing processes; labour conditions. Important industrial centres in the chief producing countries. Rayon an important substitute, especially in Eastern Canada; how rayon is produced.

Time: 25 class periods and 4 open-forum periods.

Minimum Requirements:

1. An appreciation of the social implications of the new discoveries and inventions.
2. A knowledge of how these discoveries and inventions influence industry.
3. An appreciation of the improvement that the workers of the world have effected in their working conditions largely through their own efforts.
4. An appreciation of the importance of developing a defence against propaganda.
5. An appreciation of the fact that men of all races and nationalities contribute to the solution of pressing problems in the field of industry in order that goods may be produced more efficiently and profitably. Cannot the solution of urgent social and economic problems be attempted by means of the same kind of co-operation?

Suggested Pupil Activities:

1. Pupil and committee reports.
2. Drawings representing the older methods of travel; of communication, etc.
3. The old and the new in manufacturing, illustrated by pictures and models.
4. Collect pictures contrasting working conditions in early and modern factories.
5. Collecting and making cartoons related to the Problem.
6. The evolution of home lighting; a demonstration.
7. Reports on the lives of such leaders as Davy, Faraday, Goodyear, Bell, Morse, Edison, Steinmetz, etc.
8. A visit to a factory.
9. A visit to a newspaper plant or a broadcasting station.

10. Open forum:
    (1) Is science creating problems as fast as it can solve them?
    (2) How is the spare time which machines are creating to be put to use?
    (3) How is the producer of raw materials to be assured a reasonable standard of living in this age of machines and world competition?

CORRELATIONS:

Dramatics: The life of one of the inventors may be dramatized.
Art: The evolution of home lighting lends itself to the making of a frieze as an Art project.
Language: Oral and written reports.
Science: It is all science.

REFERENCES:

The World of Today—McDoguall and Paterson.
Makers of the Modern World—Searle.
The Story of Britain and Canada—Paterson.
A Manual in Geography I—Hilton.

Problem V.—How Britain and Canada Have Developed a System of Democratic Government.

This study is almost entirely historical; and for this reason the teacher should take pains to see that the "history" does not conceal from the pupil the fact that the "Parliamentary system of government" is not merely "history," in the sense of belonging to the past, but is a present and functioning reality. In other words, the pupil must not become so much absorbed in accumulating facts that he fails to appreciate the "hereness" and "nowness" of one of our most important social institutions. Here the teacher should not hesitate to do some direct teaching, leaving to the pupils the development of subsidiary themes through assigned readings.

(a) *The development of the British System of Parliamentary Government*: How Parliamentary government works (illustrate by reference to present Canadian and British systems); how the party system developed in Britain; how the Prime Minister and Cabinet are selected and how the Cabinet system developed; attempt by George III to recover lost power of King; the resumption of democratic control under William Pitt.

(b) *The Control of Parliament Wrested from the Hands of the* Privileged Classes 1832-1929): The election system prior to 1832; the struggle against the landowners for the First Reform Bill; the workers fail to secure the acceptance of the People's Charter, but gain their end in the Second and Third Reform Bills; power of the House of Lords limited by the Parliament Act, 1911; woman suffrage movement, 1918 and 1929; the development of a third political party—the Labour or Socialist; growth and influence of the Labour Party, especially since 1918.

(c) *Canada Secures Democratic Government*: Britain hesitates to grant self-government to a colony having a dual nation-

ality; control of the government by a privileged class; protests of the Reformers; Lord Durham's investigation and report; triumph of responsible government.

(In this topic, avoid an elaborate discussion of the Quebec and Constitutional Acts, and omit all tiresome details of the negotiations between the Reform leaders and the British Government. The names of Mackenzie, Baldwin, Papineau, Howe, Durham and Elgin should have some significance when the section is completed.)

(d) *Canada Becomes a Nation*: Canada to become a nation or to remain a group of colonies; the trade depression and the danger of war with the United States as arguments for a union; influence of Macdonald, Brown, Tupper and other "Fathers of Confederation", the B.N.A. Act and the main features of the Canadian Federal System—(1) organization of federal government; (2) division of powers between federal and provincial authority; (3) taxation; (4) expenditure; (5) law enforement; review briefly the expansion of Canada in territory and population after the West was opened by the railways; Canada at the Imperial Conferences; her expanding trade and participation in the World War secure her autonomy by the Statute of Westminster, 1932.

Time: 34 class periods and 4 open-forum periods.

Minimum Requirements:

1. An elementary understanding of how the British system of parliamentary government functions in Britain and Canada.
2. A knowledge of how the people of Britain and of Canada gradually secured democratic control of their governments.
3. A knowledge of how Canada developed from a group of colonies into a nation.

Suggested Pupil Activities:

1. Pupil reports on topics suggested by the outline.
2. Dramatizations based on the lives of Mackenzie, Howe, Macdonald, etc.
3. If convenient, attend a session of the Provincial Legislature, or if this be not possible, organize the open forum for several periods as a mock legislature.
4. Make cartoons illustrating dramatic incidents suggested by the outline.
5. Prepare a chart showing the organization of the federal system of government.
6. Open-forum discussions: Is an educated body of voters necessary for modern democratic government? "To what extent is the House of Commons an effectual part of our government at Ottawa?" Do "organizations" influence the decision of the government?
7. Conduct several class discussions under the rules of parliamentary procedure.

CORRELATIONS:

Dramatics: The dramatizations suggested above may be prepared by the Dramatics class.
Language: Oral and written reports.

REFERENCES:

The World of Today—McDougall and Paterson.
The Story of Britain and Canada—Paterson.
Changing Governments and Changing Cultures—Rugg.

Problem VI.—How the Security of Our Democratic Way of Life Has Been Threatened by a Second World War.

Modern nations following the First Great World War met with new and baffling problems, finding great difficulty in effecting reasonable readjustment of their social and economic systems to a rapidly changing civilization. Unwise attempts at solutions to social and economic problems forced certain nations as Germany and Japan to follow paths leading inevitably to war. What were the forces that led to the re-enactment of a second world war twenty years after the peace of 1919 ending the "war to end all wars"? What have the United Nations done to prevent and meet this situation?

1. The Axis Nations; three nations that have attempted to solve their problems by force:

   (a) GERMANY: Her losses in men, wealth and territory during the First World War; the formation of the German Republic; economic collapse following the Treaty of Versailles; failure of the Republic to effect a reconstruction of Germany; the rise of Hitler and the Nazis; suppression of all opposition groups; rearming of Germany; reoccupation of the Rhineland; Germany's theory of racial superiority; her claim to living space and fear of encirclement; her conception of a "New Order" for Europe; steps leading to war, the Austrian Anschluss, the tragedy of Czecho-Slovakia, the attack on Poland; the "New Order" sweeps through Europe; the invasion of Russia; the failure of Hitler's "New Order" to secure the support of the invaded countries or to stand against the growing might of the United Nations; the Invasion and "D" day.

   (b) ITALY in the Post War World: Her losses in the First World War and relatively small gains; post-war collapse; Mussolini and Fascism; suppression of all opposition; Ethiopia and the League of Nations; German-Italian friendship; Italy's entry into the war; the loss of her African Empire; Italy a co-belligerent; problems of a democratic Italy after twenty-three years of Fascism.

   (c) JAPAN: The Japanese slogan, "Asia for the Asiatics"; industrial development of Japan during and since the First World War and her encroachments on British and American markets especially in the Far East; seizure of Manchukuo; War with China; Japan's Pacific cam-

paign: Pearl Harbor; Japan's capture of British, Dutch and American possessions in the Pacific; the growing power of America's Pacific forces; Japan in the Post-War World.

2. The United Nations, united in common purpose: the defeat of Nazism and Fascism.

   BRITAIN: Her Parliamentary system adaptable to modern needs of government; unemployment following the First World War; loss of markets due to tariff barriers erected by other nations; policy of protection adopted by Britain; Ottawa Trade agreements, an effort to make the British Commonwealth a self-contained economic unit; Britain and the League of Nations; appeasement, an inadequate answer to the Nazi threat; Britain's entry into the war and the support afforded her by the Commonwealth; the revival of Britain under Churchill's leadership; Britain's will to win, the power of a free nation; the Atlantic Charter; the Beveridge Report.

   RUSSIA: (Refer to Section A, Problem IV) The Revolution; the triumph of the Bolsheviks; Lenin and Stalin attempt social and economic reconstruction by "Five-Year Plans"; extent of their success; relations with neighbouring countries and with League of Nations; the Russo-German treaty of 1939; Russia secures her frontiers by a war with Finland and the annexation of the Baltic states; Russia's ambition for trade outlets in the Baltic; the military and industrial power of Russia evident in the defence of her homeland; the glory of Stalingrad; Russian relationships with United States and Great Britain.

   UNITED STATES (Refer to Section B, Problem IV): Economic development—farm and factory—during the World War; vast sums of money borrowed by Europe from the United States during the First World War and the post-war period; effect of tariffs on war-debt payments; effect of dwindling foreign trade on employment; economic collapse 1929; the New Deal planned to restore the purchasing power of the farmer and the factory worker; direction and control of economic reconstruction by the government; international affairs and the League of Nations; the Kellog Peace Pacts; British-U.S. relationships during the early years of World War Two; the end of isolationism in U.S.A. (Pearl Harbor); Lend-Lease; the power of U.S. industry and arms; Canada and the U.S. (The Alaska Highway, St. Lawerence Project); Roosevelt, a fourth term president; the conferences of Roosevelt, Churchill and Stalin.

   CHINA: Her ten-year struggle with Japan; problems of supply (Burma Road); China as a member of the United Nations; Chiang Kai Shek, his strength and weakness.

3. FRANCE: A nation that lost then regained her freedom. With Britain upheld Parliamentary government in Europe; problem of many political parties; her fear and opposition to Germany; friendship with Britain and Russia; relations with the League of Nations; French entry into the war; the

Maginot Line; Germany overruns France; the Vichy regime; De Gaulle and the Free French; freeing the French nation.

4. CANADA and Its Problems.

   The war and post-war booms and price inflations; the effect of tariffs on reparations and war-debt payments; unemployment and economic distress; the unemployed youth of the land; efforts of the governments to improve conditions; the Progressives; the U.F.A.; the rise of new political parties advocating economic changes; e.g., C.C.F. and Social Credit; obligations to the Commonwealth and to the League of Nations; Canada's War Effort, the Empire Air Training scheme; price control; Canada's aid to Britain; the conscription issue; rehabilitation and post-war reconstruction.

MINIMUM REQUIREMENTS:

1. An appreciation of the social and economic pressures that led to the Second World War.
2. An understanding of the issues that are being resolved in the present world struggle.
3. Knowledge of Canada's international trade, and an appreciation of the extent to which foreign markets for her farm products and raw materials are necessary.

SUGGESTED PUPIL ACTIVITIES:

1. Prepare reports on topics suggested in the outline.
2. Make maps to illustrate phases of the international situation, e.g., the Mediterranean area showing Italy and Ethiopia; Spain and Morocco.
3. Make maps showing relation of industrial minerals of Europe and Asia to Germany, Italy and Japan.
4. Collect newspaper clippings, magazine articles, cartoons and pictures, and classify them in a notebook.
5. Make a map showing the democracies and the dictatorships of the world. Why have dictatorships replaced democratic governments in several European Countries?
6. Open-forum discussions: If democracy is "government of the people, for the people, by the people," has it ever been fully attained in any of the democratic states? Should the League of Nations have an international police force to enforce its decrees? Is it ever advisable for a government to supress freedom of speech, of the press, and of assembly? If all the young men and women in Canada were assured that the government would grant them food, clothing and shelter for the rest of their lives, would any of them still want to earn their own living?

REFERENCES:

The World of Today—McDougall and Paterson.
Changing Governments and Changing Cultures—Rugg.
Changing Countries and Changing Peoples—Rugg.

Problem VII.—What of the Future?

At the end of five years of war the United Nations have the achievement of victory in sight. With the cessation of hostilities, problems far greater in complexity than those of winning the war will have to be faced. World peace must be secured and the principles of the Atlantic Charter established. The pupils should understand the implications of various proposals towards the achievement of these objectives.

1. Failure of man's organizations to maintain peace following the first world war.
   (a) Trends and developments in the interest of peace: The League of Nations, World Courts; interdependence of modern nations; disarmament conferences; appeasement policies of the democracies; pacifism.
   (b) General causes of failure: International hatreds and prejudices; theories of racial superiority; failure of certain nations to solve their socio-economic problems; resort to militarism as a means of solving unemployment.
2. Problems of securing the peace following World War Two.
   (a) Atlantic Charter.
   (b) Proposals for united effort in maintaining world peace developed at the Dumbarton Oaks conference.
   (c) United Nations Permanent Organization on Food and Agriculture (P.O.F.A.) conference at Hot Springs, Virginia.
   (d) U.N.R.R.A. (United Nations Relief and Rehabilitation Association).
   (e) Control of the world's airways in post-war air transport.
   (f) Influence of the British Commonwealth and other members of the United Nations.

This constitutes a review of the more important "appreciation" phase of the work of the year. Some of the problems discussed at the opening of the term might be reopened for a discussion based on a broader knowledge and a more mature judgment. Impress on the pupils that they must be prepared to review and revise their opinions at all times in the light of new information and broader experience.

References:

(As suggested for previous problems.)

The World of Today—McDougall and Paterson.
Changing Countries and Changing Peoples—Rugg.
Changing Governments and Changing Cultures—Rugg.

HEALTH AND PHYSICAL EDUCATION

The course in Health and Physical Education comprises (A) Health Education, and (B) Physical Education. The course in Health Education consists essentially of health instruction and information, training in health habits, and the development of a "health conscience." Physical Education is the active participation by students in various forms of physical training, either in a gymnasium or on the playground. The course in Health Education may take the place of Physical Education on the school programme when no gymnasium is available, or when the playground cannot be used. The total time required for this combined course is four periods a week in schools which devote five or more periods weekly to each of Mathematics, General Science, English, and Social Studies. Of these three periods, one should be given to Health Education and three to Physical Education; but the teacher is left free to vary this arrangement. For example, Physical Education may be stressed in the fall and spring, and Health Education in the winter months, in schools where there is no gymnasium. This flexibility makes possible the inclusion of Health and Physical Education as one of the compulsory courses, and justifies the requirements that it be given a definite place on the time-tables of all schools throughout the year.

A.—HEALTH EDUCATION

INTRODUCTORY STATEMENT

"If the school is to make any genuine and adequate contribution to the furtherance of health, it must set up *three objectives*; it must provide for the formation of *health habits*, the imparting of *health information*, and the development of a *health conscience*. The first of these is fundamental to the other two, for habits are the foundation on which the superstructure of life is erected."

"Habits, however, are not enough. They must be raised to the level of consciousness and made meaningful. The facts which lie back of them must be grasped; the basic principle must be understood."

"But habits and information, however valuable they may be, are not sufficient to the task. The school must imbue its pupils with a profound concern for the promotion of their own health and that of the community, and must inculcate an earnest desire to eliminate disease and defect and privation from the lives of men. The individual must be given a *health conscience*: he must be made to display a will to health; he must be encouraged to develop a moving sentiment for health."

"Through definite instruction those superstitions regarding health and disease which have come down to us from a pre-scientific age, and which grows luxuriantly in almost every stratum of the population, must be eradicated."

"The development of a positive attitude towards health is possible only under the guidance of teachers who themselves possess it in full measure, who appreciate the significance of their work, and who grasp the meaning of the struggle of the race for a more abundant physical life. Under such instruction our children must

enter imaginatively into this age-long struggle of mankind, and thereby come to appreciate for themselves the worth of this portion of the human heritage. As in the past they have lived with the heroes of war and politics and finance, so in the future they must be made to live with those heroes who, despite discouragement and the bitterest opposition, have fought for the race the battles of medicine."—Adapted from "Principles of Education," by Chapman and Counts.

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SUGGESTIONS FOR USE OF THE OUTLINE

The outline is suggestive only. The teacher is expected to formulate and offer a programme that will meet the needs of his particular group of pupils. Habit attainments, however, and pupil activities will be the most important concern of the teacher. The following general suggestions are offered:

1. In order to avoid too much "teaching" of Health assign projects and surveys to the class, and to individual pupils. Let the health programme of the school reach out into the community. Have surveys made of the health habits of the community; of the facilities for public health; of the "danger spots"; of the methods of preparing food in the community, and of the menus commonly used; of the extent to which patent medicines are used; of the facilities for recreation, etc. Assign projects in school hygiene and community hygiene.

2. Correlate the Health Education with General Science, Social Studies, Home Economics, etc., whenever feasible (e.g., the unit on Community Health and the unit on Nutrition).

Much of the informational material in the outline will come up for discussion in General Science. There is no reason why instruction should be reserved for health periods.

NOTE RE TEXTBOOKS

No textbook has been authorized for the use of pupils in Grades VII, VIII or IX.

At least two of the reference books listed for pupils together with one of those listed for the teacher are required in every classroom.

A TWO-YEAR CYCLE FOR GRADES VII AND VIII.

In ungraded schools, or in schools where Grades VII and VIII can be combined, the outline for Grade VIII may be used with the combined Grades during the year 1944-45, and each alternate year thereafter. The outline for Grade VII will then be used during the year 1945-46, and each alternate year thereafter.

GRADES VII AND VIII

Health teaching in Divisions I and II (Grades I to IV) has been focussed on the development of good health practices. Emphasis has been placed on the establishment of correct health habits with little formal instruction on the physiological or hygienic reasons for these practices. Simple explanations, of course, must be made

as to why it is best to do certain things, but the scientific background necessary to understand healthful living has been withheld until more mature years.

It seems important now that Grade VII is reached to have the child understand the scientific principles underlying the habits he has established. A rational basis for his health practices should have a tendency to more firmly fix these habits and to give a broader understanding of health procedures in general. Also, at this age level, the child should begin to be concerned about more than his own personal health. He should now begin to realize what others have contributed to his safety and well-being, and he should develop an attitude of responsibility towards protecting and improving the health of others in the family and in the community.

In order to lay a basis for the two units in Grade VIII, the Grade VII work is based on the theme, "What man has accomplished in his efforts to conquer disease and to acquire health." Both the Grade VII units aim at developing an appreciation of the long difficult struggle man has made to overcome disease and the great body of scientific information that lies behind the health and well-being of people today.

The two Grade VIII units aim to develop the child's responsibility for his own health. The first unit enables him to form judgments regarding himself, and the second unit presents health problems based on simple knowledge of the structures of the body.

No programme in health education can be regarded as adequate which does not provide for warnings as to the dangers for intermediate grade pupils which may result from the use of tobacco, alcohol, and other habit-forming drugs. Teachers are urged to inform themselves fully as to the conclusions reached by scientists who have studied the effects of these drugs on general health. Information will be found in the reference books listed throughout these outlines.

Other Phases of the Health Programme.

I.—*Maintenance of a healthful environment*:

(1) Ventilation—The teacher should see that the room is kept at an even temperature (about 68 degrees). There should be a good circulation of air, preferably from windows that open from the top. If possible some moisture should be added to the air by means of a water pan on the stove or furnace or by some other method.

(2) The teacher should see that the pupils are seated in desks adjusted to their size. Make this a class project and have the pupils measure and adjust the seats and desks.

(3) The teacher should make every effort to get the best light possible. Consider not only the windows and blinds, but also the colour of the walls and ceiling to get good reflection of light.

(4) The teacher should make sure that there is an adequate supply of good drinking water and that it is dispensed in a sanitary manner.

(5) The teacher should see that there is adequate equipment for washing purposes—basins, soap, individual towels, pail for waste wash water.

(6) The school must be well swept and dusted. Outbuildings must be kept clean.

(7) Every effort should be made to acquire some playground equipment.

II.—*Incidental teaching*: Incidental teaching as the occasion arises is an exceedingly important part of the health education programme. The teacher should be alert to the opportunities that present themselves in the teaching of other subjects, particularly science and social studies. He should also make the most of the occasions that arise in the classroom where health instruction is necessary.
Attention should be called to reports in local papers of incidents in which juries, magistrates or high courts point out that fires, accidents or crimes result from the carelessness or wrong habits of the participants.

III.—*Health inspection*: In these upper grades this will be entirely informal, and may be done in a casual but careful fashion as the pupils come in or as the teacher goes about the room. The teacher should watch for unusual symptoms, such as sore eyes, pallor, fresh cold, flushed face, rash, etc. Also, this is a good time to check up on the practice of health habits, as cleanliness, neatness, removal of extra wraps, etc.

IV.—*The school lunch hour*: In rural schools or in schools where children bring their lunches, every effort should be made to have this period prove a valuable health experience. It is a real situation that lends itself to an extraordinary amount of good, practical health teaching. The children should wash their hands before eating. They should sit down and eat their lunches together in a comfortable, friendly way. There should be pleasant conversation. It is a good time to check up on the kinds of lunches the children eat and how to make suggestions as to the best kind of lunches and how to pack them. In cold weather a hot drink should be served.

V.—*Hygiene of instruction*: Hygiene of instruction involves such problems as the pupil load; that is, the number and sequence of subjects, the length of the lesson periods, the number of relaxation periods, provision for rest and extracurricular activities. The teacher should take time to make a survey in order to make sure that the school programme is not taxing the strength of any child or in any way undermining the health of the pupil.

References for the Teacher

1. *Health Education*—N.E.A. & A.M.A. National Education Association, Washington.

2. *Methods and Materials in Health Education*—Williams & Shaw (Revised Edition)—(Nelson).

3. *Personal & Public Health*—Burkard, Chambers & Maroney (Ryerson).
4. *School Health Problems*—Chenoweth and Selkirk (Crofts)
5. *Hygiene for Students and Teachers*—C. G. Eastwood (The Macmillan Co.).
6. *Healthful Living*—H. S. Diehl (McGraw Hill Book Co., N.Y.).
7. *Modern School Hygiene*—R. Gamlin (The Copp Clark Co.).
8. *Health Work in the Schools*—Hoag and Terman (Houghton Mifflin Co.).
9. *College Textbook of Hygiene and Community Hygiene*—Smiley and Gould (The Macmillan Co.).
10. *Biology and Human Welfare*—Peabody and Hunt (The Macmillan Co.).

GRADE VII

UNIT I.

To study the progress man has made through the ages in meeting his health problems.

Objective:

To give an understanding of the progress man has made in overcoming disease and in preserving health; to develop an appreciation of the great problems and difficulties man has mastered to acquire the vast amount of scientific information we now use to keep us well.

1.—How Primitive Peoples Treated Sickness.

Primitive peoples thought that sickness was due to angry gods or to evil spirits. Health practices consisted of various means to placate the gods or of magic and charms to drive out the evil spirits. Healing was part of religion and was bound up with medicine men or priests who knew the ritual.

*How was disease treated by North American Indians?	Look through a history of Canada to discover the diseases that troubled the Indians.
What methods are used by the Eskimos in treating illness?	Find some of the treatments given by the medicine men.
How did charms come to be used? What are some superstitions present today that have grown out of the use of charms?	Find out the meaning of incantations and how they were used.
	Write down as many common superstitions as you can think of and give reasons why you think they grew up.
What is the origin of sacrifices?	Read stories of native life in Africa or Australia to see if you can discover their methods of treating disease.

*All problems and activities given in this unit are merely suggestive.

2.—Health Practices of Early Civilizations.

Early civilizations made a slight advancement. The Hebrews isolated the sick and quarantined houses for certain kinds of disease. Laws made respecting cleanliness and sanitation. The Greeks were the first people to begin the study of a disease in a scientific manner. Hippocrates is called the Father of Medicine because he was the first to recognize that disease was the result of natural causes. He definitely separated healing from religion. The Romans made great advances in sanitation. They paved the streets and provided drains. They built beautiful baths and developed an exceptionately fine water supply.

What diseases are mentioned in the Bible?	Look through a few chapters in some of the books of the Old Testament to discover the disease that troubled the Hebrews and their explanation of the cause.
What did the Hebrews think was the cause of disease?	
How were wounds dressed in Bible times?	See if you can discover some of the methods used by the Hebrews to prevent the spread of disease, e.g., in Leviticus, Chapter 13 and 14.
What conditions in ancient times were conductive to the spread of leprosy?	Read in the story of Ben Hur about the treatment of lepers.
What treatment did the Greeks have for disease?	See what information you can find in the temples of healing in Greece.
What is the origin of the Olympic games? What influence had this custom on the health of the people?	List important health habits practiced by the Greeks.
	Read the story of the life of Hippocrates.
How did Rome get a good water supply?	Look up in the history of the Roman period the sanitary measures undertaken by the Romans.
What sanitary precautions did the Romans take to make their city more healthful?	

3.—The Dark Ages and Their Effect on the Progress of Health.

This was a barren period in health progress. Superstition prevailed. Great plagues swept across Europe—the Black Death cholera, smallpox. Cities and towns sprang up with little sanitation. People did not practise the simplest laws of personal cleanliness. The poor lived in small, dark, crowded houses. Laws were made respecting the quarantine of ships.

Why did so much sickness prevail during the Middle Ages?	Read in a history of the conditions that prevailed during the Dark Ages. Discuss the causes of the great plagues of this period.
	Find out why the writings of Galen hampered medical progress.

What diseases are carried by vermin?
Why was vermin so prevalent?

Explain why skin diseases were so prevalent.

Why do such diseases as smallpox and cholera spread rapidly?

Find out what you can about the early universities in Europe—Padua, Salerno, Bologna.

When was soap first manufactured?
What influence would it have on the spread of disease?
Who were the doctors of this period?
Were there any universities?

Tell about the barber-surgeons.

What is the origin of "quarantine"?

Read about the first precautions taken to prevent the spread of disease from port to port. Compare with modern regulations.

4.—The Revival of Learning and its Effect on the Health of the People.

A scientific study of the human body was begun. Vesalius wrote the first book in anatomy. William Harvey discovered the circulation of the blood. The first microscope was made. The Factory Act slightly improved working conditions; prison reform was begun. Jenner discovered vaccination. Florence Nightingale began the training of nurses. Pasteur discovered that germs cause disease and proved how immunity might be created. Surgery was improved because of the work of Lister. A scientific study of the growth of bacteria was begun by Koch. The X-ray was discovered.

What prevented the study of the human body earlier in history?

Explain why religions in the period slowed up the progress of medicine.

What had people believed about the heart and the blood previous to Harvey's time?

Read the story of the life of William Harvey.

Read the story of Leeuwenhoek.

What great discovery was dependent upon the microscope?

What effect had factories on the health of the people?

Look up in a history of England the conditions that prevailed in the factories.

What was Jenner's method of vaccinating?

Compare the treatment of prisoners in that period with the treatment given today.

Discuss the elimination of the terrible scourge of smallpox.

Why did Pasteur's work revolutionize health work?

Read the life of Pasteur and make a list of his great discoveries.

Why did so many people die in hospitals previous to the time of Lister?

Collect some X-ray pictures from a doctor or dentist.

Compare modern hospitals with those of Lister's time.

What is the origin of the Red Cross movement?

Read about the work of Florence Nightingale and Henri Dunant.

5.—Some Recent Discoveries that Have Promoted Health.

Radium has been discovered. Dr. Banting and his co-workers discovered insulin for the treatment of diabetes. Many toxins, antitoxins and vaccines can now be made for the prevention and treatment of diseases. Some important drugs once obtained from plants can now be manufactured in a laboratory, e.g., quinnine. The nature of the virus is gradually being revealed. Important drugs have been discovered to control infection in the body, such as the sulfa drug and penicillin. The chemistry of the blood is gradually being revealed. Blood plasma can now be dried and stored for transfusion purposes. The nature of shock in now understood. The chemical composition of many important vitamins has been discovered. The nature of the work of the glands is more fully understood and treatment for glandular deficiencies has been developed. Work is progressing on the nature of cancer.

Why are communicable diseases gradually being eliminated?

What types of research are being carried on at the present time?

What diseases are caused by viruses?

What is the nature of shock?

Why does the transfusion of blood plasma help to overcome shock?

Who discovered penicillin?

How is it made?

What diseases are now being controlled by vaccines?

What is the difference between a vaccine and an anti-toxin?

Watch for articles and news items on new discoveries in the field of health.

Collect and discuss clippings from newspapers and magazines.

Discuss advertisements of various patent preparations, especially those advertising cosmetics and toilet goods. Try to form sound judgments on the value of advertised products.

Read about the discovery of radium. Find out about the radium deposits at Great Bear Lake.

Find out how some vaccines are made.

Find out how penicillin is manufactured.

Study the nature of shock and first-aid treatment for shock.

References for the Pupil:

Our Ways of Living; Wilson & Wilson—American Book Co.

Health Horizons; Silver Burdett.

Health and Human Welfare; Burkard, Chambers and Maroney —Ryerson Press.

Health Through the Ages; Man's Fight Against Disease—The Metropolitan Insurance Co.

Men Who Found Out; William-Ellis—Gerald Howe, London.

Science in the Service of Health; Downing—Longmans Green.

Health Through Science; Charters, Smiley and Strang—Macmillan.

References for the Teacher:

Struggle for Health; Hoffman—Horace Siveright.
The Microbe Hunters; De Kruiff—Harcourt Brace.
Men Against Death; De Kruiff—Harcourt Brace.
Rats, Lice and History; Zinesser—Musson Book Co.
Medicine in Modern Society; David Riesman—Princeton University Press.
Medicine and Mankind; Eugene H. Pool—D. Appleton-Century Co.

UNIT II.

To study what man has done to get a food supply and the importance of food to health.

Objectives.

To have the class realize the difficulties people have overcome in getting an adequate food supply and to develop an appreciation of the enormous amount of scientific research that has been done to discover the constituents of foods and the use the body makes of them; to develop an understanding of food values and the planning of good meals.

1.—How Have Food Habits Changed with Civilization?

(1) What did primitive man eat?	List the food eaten by the North American Indians. Find out what the natives of Africa or Australia eat. Find out what the people ate in Bible times. Read the history of early Britons to discover something of their food supply.
(2) Why did man begin the cultivation of seeds and plants?	Read from a history or other book to discover when animals were domesticated and how early people cared for their animals.
(3) How did man get a constant meat supply?	Try to find out when grains were first cultivated.
(4) How did national food habits develop, e.g., the Japanese, the Eskimos, the Tibetans, the Italians?	Compare food customs of people in other countries with ours, and explain why these differences arose.
(5) How did man learn that disease might come through faulty diet?	Read the story of the Crusades. Many of the soldiers died from scurvy. Look up the story of Captain Cook and find out how he eliminated scurvy.

	See if you can find any material on the ancient disease, beri-beri, and find out how the Japanese eliminated it from their navy.
(6) What has science done to improve our food supply?	Read the story of the life of Pasteur and find out how he eliminated anthrax among sheep and cholera in chickens.
	Read how Carleton and Saunders improved the wheat grown in America.
	Read the story of the life of Burbank.
(7) What are some of the faults of our modern food habits?	List some of the scientific inventions that have improved our food supply.
	Watch the newspapers and make a book of clippings of news items concerned with food.
	List the arguments for and against refined foods.
	What are the advantages and disadvantages of roughage in foods?
	Discuss how the consumption of certain foods have changed, e.g., the increase in the consumption of sugar, the decrease in the amount of bread eaten and the increase in the amount of vegetables used.

2.—How Can One Judge the Effect of a Good Diet?

(1) *By weight and growth.*

Should one weigh a certain amount for one's height and age?	Weight tables give average and not normal weight. They should be used only as a ref- should be used only as a reference for the teacher, and are not for the use of the pupil. It is not important that a child conform to the average as set down on a weight table, but it is important for him to gain in weight month by month.
Why is it a good idea to be weighed regularly month by month?	Have each child keep a weight graph on which he records his weight month by month. (A good chart may be obtained free for each child by sending to the Canadian Tuberculosis Association, Ottawa.)

Why does it matter if one is thin? or overweight?	Discuss when it is not a good thing to be too much underweight as it results in fatigue, lowered resistance, etc.
What are the best ways to increase weight or to reduce in weight?	Make a list of some of the causes of underweight. Discuss newspaper advertisements for reducing in weight.
(2) *By energy for work and play.*	
What is the source of energy?	Compare the human body with an engine, both requiring fuel to produce energy.
How is the energy value of food measured?	Show by some simple experiments that oxygen is necessary to burn any substance, e.g., candle in a jar, close drafts in stove, etc.
Which food gives the most energy?	
What forms of work or exercise take the most energy?	
Why do you get hot when you run fast?	
How can it be determined how many calories a person needs?	Read in any health book how the air gets to the cells to burn the food.
What would happen if you did not have enough calories?	Find out how it may be determined how much heat each kind of food will give.
What class of foods are used by the body for heat and energy?	Estimate the number of calories you need in a day. (See table in "Health Through Science," p. 34.)
	Work out the number of calories you eat for breakfast or dinner. (See tables on pages 41-44 in "Health Through Science.")
	Discuss carbohydrates and fats and show why they are our best energy foods.
(3) *By the growth of muscle and other cells.*	
How do cells grow? What do cells need in order to grow?	Draw a diagram showing how cells multiply.
	Explain why cells need food, oxygen, water, etc., in order to grow.
What particular kind of food is used by the body for building cells?	Make a chart showing the protein foods. Put the best proteins on the left side and the poorer ones on the right. (Look up the charts shown in "Health Through Science.")
Why are minerals needed by the cells?	

What is the particular use of calcium? Phosphorus? Iron? Iodine?

Why might people in Alberta be troubled with goitre?

Find out how they make iodized salt. (A free booklet may be obtained from Canadian Industries Limited, Montreal.)

Discuss why sea food contains a good deal of iodine.

Compare milk with other foods as a source of calcium.

Plan a diet which would be rich in iron.

(4) *By keeping well and having a high resistance to disease.*

How were vitamins discovered? Do we know the composition of vitamins? Can they be seen?

Read the accounts of some experiments that have been done to prove that animals can't live without vitamins.

What is the value of Vitamin A?

How has it been proven that Vitamin A is needed for growth? For the health of the eyes? (See "Foundations of Nutrition" by Rose.)

Why is Vitamin D important to young people?

What are the other vitamins and what is their function?

Make a table showing the important functions and the best sources of each of the vitamins.

Can we get too many vitamins?

Cut pictures from magizines of various foods and arrange them on charts to show the best sources of each of the vitamins.

What is the value of sun baths?

What are some of the signs of rickets?

Explain why it is important for young children to have cod liver oil during the winter months in this climate.

How is the vitamin content of foods destroyed?

Plan a week's menu which will give some raw food each day.

What vitamins are important to the building of good teeth?

3.—What is the Value of Special Foods?

What is the value of candy? Is it harmful? What are the best kinds of candy?

Explain that candy is an energy food, but provides no building substances, no minerals or vitamins. The best time to eat candy is after meals so that it will not take away our appetite for better foods.

Discuss various kinds of candy and good substitutes for candy, as nuts, raisins, dates, etc.

Are tea and coffee harmful?	Explain that tea and coffee have no food value except the cream and sugar that are added and that they take the place of milk which growing children need. They also may act as a stimulant which may be harmful to children.
Are soft drinks harmful?	Discuss the various kinds of soft drinks and show that they have little food value. List good substitutes for soft drinks, as milk shakes, ice cream and fresh fruit juices.
Could alcohol be considered a food?	Explain that alcohol does burn to produce a small amount of heat and energy, but that its effects may be extremely harmful. Used continuously it destroys tissues, lessens the ability of white corpuscles to kill disease germs, lessens the power of body anti-toxins, and generally lowers the power of resistance.
What is meant by Canada Approved flour?	Send to "Nutrition Services," Department of Pensions and National Health, for free materials on food.
How does the shortage of vitamin B1 affect people?	Find out what the Provincial Department of Agriculture is doing to promote better nutrition in Alberta.

4.—What is the Value of Water in Good Nutrition?

How is water used in the body?	Do some simple experiments to show that all living things contain a large amount of water.
What are the different ways the body obtains water?	
How much water is needed every day?	List the various uses of water in the body. Water forms about two-thirds of body weight and is necessary for digestion, absorbtion of food, elimination, regulation of temperature, etc.
Should one drink water with one's meals?	
How long can one go without water?	Discuss various ways water is lost from the body.
How is water lost from the body?	
Why should one drink large amounts of water during an infectious disease?	Do a simple experiment to show that combustion produces water.

What may happen within the body if one does not receive enough water?	Show that food burning in the body produces water. Compare the water content of various foods.
How does water become contaminated?	Discuss your local water supply as to dangers of contamination, good drinking qualities, etc.

5.—Of What Importance are Good Habits in Eating?

Why is it important to eat at regular times? Why should one eat slowly and chew food well?	Discuss habits conductive to good digestion giving the physiological reason for each.
Why does worry or anger upset digestion? Why is it a good idea to rest for a short time after meals? Should one eat before going to bed?	Explain that good table manners add to one's enjoyment of a meal and so are an aid to digestion.

References for the Pupil:

Bulletins from Dept. of Public Health, Edmonton.
Bulletins from Extension Branch, Dept. of Agriculture, Alberta.
Health Through Science; Charters, Smiley and Strang—Macmillan.
Healthy Bodies; Fowlkes and Jackson—J. C. Winston Co.
Building for Health; Burkard, Chambers and Maroney—Ryerson Press.
Physiology and Health; Turner—D. C. Heath and Co.
Doing Your Best for Health; Building Good Health; Andress, Goldberger and Hallock—Ginn and Co.
New Ways for Old; Blazing the Trail; Wood, Phelan and Others Thos. Nelson.

References for the Teacher:

Vitality Through Planned Nutrition; Davis—Macmillan.
Vitamins; Borsook—Macmillan.
Teaching of Nutrition to Boys and Girls—Macmillan.
Foundations of Nutrition; Rose—Macmillan.
Nutrition and Physical Fitness; Boget—Macmillan.
Food Models; Roberts—University of Chicago Press.
How to Live; Fisher and Fisk—Funk and Wagnalls.

GRADE VIII

UNIT I.

To take stock of one's health.

Aims.

To survey one's physical health.
To discover if one is developing good mental health.
To make surveys of one's health practices.

Suggestions to the Teachers as to How to Develop This Unit.

In the elementary school the teacher is largely responsible for making the health examination, but beginning at the junior high school level, the teacher should put most of the responsibility on the child for checking his own health practices and for estimating his health status. A child in Grade VIII should be able to make a health examination of himself. Listed below are some of the questions a child should ask himself in evaluating his physical and mental health as well as his health habits. These questions are only to serve as a guide. The teacher might find that in her particular school they by no means cover the situation.

It might be a good idea for a child to rule out a score card covering these various phases of the health examinations and give himself a rating.

In testing eyes let the children work with partners, but do not attempt to do this checking in large groups as the children quickly memorize the letters on the chart. Hectographed sheets listing the everyday health habits which are thought necessary might be given to each child with a request that he score his achievement. An effort should be made to emphasize the practice of those habits that are generally neglected. These would form a good beginning for the next unit, as the physiological reasons for such practices could be stressed.

1.—Making a Survey of One's Physical Health.

1. Does my weight indicate good health?
   One indication of good health is a gradual increase in weight month by month. Keep a simple weight graph and be weighed about the same time each month. (Weight charts may be obtained free from the Canadian Tuberculosis Association, Plaza Building, Ottawa. Bathroom scales may be purchased for a little less than five dollars.)
   There is no need for a child to conform to an average or so-called normal weight as set down by a weight table. It is important only that a child show a gradual increase in weight month by month.
2. Do I need to improve my posture?
   (a) Study posture charts to decide what good posture is and to discover what are the common defects. (A good set of charts may be obtained from the United States Government Printing Office, Washington, D.C., for fifty cents.)
   (b) Observe one's characteristic posture in a long mirror Watch for such defects as round shoulders, flat chest, head thrust forward, hollow back, protruding abdomen.
   (c) Try the straight-line test for posture on each other. Make criticisms and suggestions.
   (d) Work out corrective exercises for various types of defective posture.
   (e) Check up on correctness of walking habits—feet placed in a parallel position, neither toeing in or out; weight thrown to outer border of the foot.
   (f) Estimate the harm done to one's health by poor posture.

3. Is my eyesight normal?
   (a) Each child may test his own eyes, using a Snellen's Eye Test Chart. He should stand twenty feet from the chart and be able to read the twenty-foot row from that distance. Each eye should be tested separately. (A good eye chart may be obtained free from the Canadian National Institute for the Blind, 186 Beverley Street, Toronto, Ontario.
   (b) Check up on symptoms of eyestrain, such as headaches, blurring of letters, dizziness, specks in front of the eyes, styes.
4. Is my hearing normal?
   (a) Test each other's hearing. A person with good hearing should be able to hear numbers whispered at a distance of 20 feet. Test each ear separately, covering one with the hand.
   (b) Check up on other defects, such as running ears, noise or fullness in the ears. All ear abnormalties should be treated by a doctor.
5. Do my teeth need attention?
   (a) Teeth should be checked twice a year by a dentist.
   (b) Check condition of the gums. Do they bleed? Is there any tarter on the teeth?
6. Have I healthy nose and throat?
   (a) Can I breathe freely through my nose?
   (b) Do I get colds frequently?
   (c) Do I have sore throats frequently?
   (d) Have I ever had a medical opinion on the condition of my throat?
   (e) Do I have frequent nose bleeds?
7. Are my nails, hair and skin healthy and well kept?
   (a) Am I troubled with pimples or blackheads?
   (b) Do I have skin rashes?
   (c) Is my hair glossy and free from dandruff and excessive oil?
   (d) Are my nails smooth and pink?
8. Are my feet in good condition?
   (a) Are my arches normal?
   (b) Are my feet free of corns and calouses?
   (c) Am I troubled with ingrown nails?
9. Have I the tobacco habit?
   (a) Am I aware that smoking may check my growth?
   (b) Do I know that smoking irritates delicate tissues of nose and throat?
   (c) Do I know that coaches as Stagg, Rockne and Connie Mack always give the preference to non-smokers?
   (d) Do I know that cigarette smoking invariably tends to an increasing use of tobacco?

II.—Discovering One's Mental Health.

Am I practising habits that lead to good mental health?

(a) Am I generally happy?
(b) Do I worry over trivial things?
(c) Do I enjoy working with others?
(d) Am I a good sport in playing games?
(e) Do I forget grudges quickly?
(f) Do I co-operate with others?
(g) Do I help others out of difficulties?
(h) Have I a good sense of humour?
(i) Do I appreciate what others do for me?
(j) Am I polite and courteous to others?
(k) Have I self-confidence?
(l) Have I a hobby or do I make good use of my leisure time?
(m) Have I any habits which might make me irritable or irresponsible?

III.—Making a Survey of One's Health Practices.

Have I acquired habits that lead to good physical health?

(a) Do I get eight to ten hours sleep every night?
(b) Do I sleep with my window open?
(c) Do I take a bath at least twice a week?
(d) Do I play or exercise out of doors for at least an hour every day?
(e) Do I wear comforable walking shoes?
(f) Do I change my stockings two or three times a week?
(g) Do I change my underwear at least once a week?
(h) Do I drink two or three glasses of milk every day?
(i) Do I eat two vegetables besides potatoes every day?
(j) Do I eat some raw fruit or vegetable every day?
(k) Do I eat some whole-grain cereal product every day?
(l) Do I eat my meals at regular times?

References for the Pupil:

A Snellen's Eye Chart and literature on care of the eyes may be obtained free from the Canadian National Institute for the Blind, Calgary, Alberta.

Posture Standards, a set of six charts, may be obtained from the United States Government Printing Office, Washington, D.C. (50c).

Charts and literature on *dental decay and the care of teeth* may be obtained free from The Canadian Dental Hygiene Council, Medical Arts Building, Toronto.

Individual Weight Charts may be obtained free from the Canadian Tuberculosis Association, Plaza Building, Ottawa.

Booklets from the Metropolitan Insurance Co.: "Foot Health," "Tonsils and Adenoids."

Reference for the Teacher:

School Health Problems; Chenoweth and Selkirk—F. S. Crofts & Co., New York.

UNIT II.

To study how the body is made and how it functions.

Aims.

To discuss with the class everday health problems. To use these problems as a basis in giving scientific information on the structures of the body and how they function, in order that the child may have a more intelligent understanding of how to care for his health.

Suggestions to the Teacher on Developing This Unit.

Do not make this unit a formal study of physiology. It is not necessary that the child should have detailed knowledge regarding any structure, nor should he be concerned with the scientific names. Teach the unit in a psychological rather than a logical manner, that is, begin with a problem the class is interested in and work back to give a scientific explanation of the problem. Raise questions for the class to explain. Try to have good charts showing the various structures of the body and make the work in physiology largely chart study. These charts can be made as a class undertaking, and could be done on heavy sheets of brown paper. Some problems are suggested here with accompanying activities, but these need not be closely followed. The teacher may find that there are other problems which are of greater concern in his school.

1.—Building Blocks of the Body.

Why does one form of matter differ from another? What makes iron different from coal? Rocks from wood? Leaves from bark?	Look in a science book to discover why there are different forms of matter.
How is living matter made?	
Who discovered cells?	Find out how Robert Hook or Theodor Schwann discovered cells.
What are cells like? How do they grow and multiply?	Draw some plant cells.
How many kinds of cells are there in the body?	In a book on physiology read to find out how many kinds of cells there are in the body. Draw these cells.
How do cells make tissues?	Name some of the tissues in the body.
How are organs made?	
How does healing take place?	Name some of the tissues that make a special organ such as the eye or the foot.

2.—How Does the Body Digest Food and How Can We Care for the Digestive System?

What happens to the food we eat?	Read the story of Lavoisier to find out how he discovered what happens to the food we eat.

How does the food get to the cells?	Study a chart on the digestive system and trace the passage of food through the body.
Why do we need such a variety of foods?	
How long can a person go without food? Without water?	The men in the Moose River Mine disaster went eleven days without food. Try to find incidents of other long periods of time that men have gone without food. Why can't people do without water for such long periods?
What causes indigestion?	
Are some special food combinations harmful?	
How can one overcome constipation?	
What causes vomiting?	
What causes appendicitis? Why is it so serious?	Find out the symptoms of appendicitis. What is the best first aid treatment? Look this up in a book on physiology.
Do all foods produce the same amount of heat?	Characteristic action: (1) to check or impair body activities; (2) to dull the user's ability to judge of its effects upon himself; (3) to deceive the user into thinking it is doing him good when it is really making him less capable and fit.
What happens when alcohol is taken into the stomach?	Explain why practically all nations enact legislation restricting the use of beverage alcohol.
What disease can be obtained from contaminated food.	Give the reasons why pasteurization of milk makes it safe.
	State some regulations that protect our food supply.

3.—What is the Work of the Teeth and What is the Best Way to Build Sound Teeth?

When do baby teeth begin to form?	Make a chart showing the first set of teeth.
What is the importance of the baby teeth?	Find out why baby teeth are called pathfinders for the second teeth.
Why should the baby teeth be kept as long as possible?	
Where is the six-year molar?	Make a chart of the second teeth and mark the six-year molar.
Why is it so important?	
How are teeth constructed?	Draw a diagram showing the structure of the teeth.
What is the actual cause of decay?	Look in a hygiene book to find the explanation of tooth decay.
Why do teeth come in crooked?	
What foods are best for the teeth?	Read advertisements of tooth pastes and discuss their advertised merits.

Are some kinds of tooth paste better than others?	Make a tooth powder, using equal quantities of salt, baking soda and camphorated chalk.
What is the best kind of brush?	Discuss the best kind of tooth brush.
Why do abscessed teeth lead to rheumatism and heart trouble?	
Why is it important to go to a dentist every few months?	Make out a list of questions that would be interesting to ask your dentist.
What causes gums to bleed?	Plan a day's menu which would be particularly good for building sound teeth.
What is tartar?	

4.—What are the Best Ways to Improve the Blood and to Care for the Heart?

Why is heart disease the chief cause of death in Canada?	Write to the Department of Vital Statistics in Edmonton and find out the chief cause of death in Alberta.
What are the causes of heart disease?	
How can one know if the heart is affected?	Name some of the symptoms of a weak heart.
How fast does the heart beat?	Count the pulse.
Why do the veins look blue?	
Why is the blood called the great distributing agent of the body?	List the various substances that are distributed by the blood.
What makes people pale?	
Why does eating liver improve the blood?	
What makes the heart beat faster when one runs?	Read the story of William Harvey.
What is the best way to stop a nose bleed? Other haemorrhages?	Learn first-aid treatment of haemorrhages.
What is the effect of excessive smoking on the heart?	Trace the circulation of the blood on a chart.

5.—How Does the Body Provide Oxygen for the Burning Process Going on in the Cells?

Why do we breathe?	Burn a candle in a jar. Why does it go out? Did it make a film of moisture on the jar?
How can we prove that respiration is a burning process?	
What wastes are always produced by burning?	How could you prove that it produced carbon dioxide? How could you show that we breathe out carbon dioxide?
Does one need a large lung capacity?	
What makes the lungs expand and contract?	
How is the air carried to the cells?	Study a chart of the breathing organs. Name the air passages.

Why is it so important to breathe through the nose?

What is the work of the tonsils and adenoids?

What causes colds? Can they be prevented? How should they be treated?

What effect has cod liver oil on colds?

Why do colds sometimes cause earache and running ears?

What factors should be considered in good ventilation?

Why does a person suffocate in a smoke-filled room?

Draw a diagram showing the structure of the nose for cleaning, warming and moistening air.

Mark the position of tonsils and adenoids. Show the eustachian tube.

Read in a hygiene book about the work of the tonsils and adenoids.

Keep a temperature chart in your classroom.

Make a wet and dry bulb hygrometer, using two thermometers. Test the humidity of your room. (Ideal humidity should be about 40.) Try to discover some way of adding moisture to your room.

6.—How Do the Skin and Kidneys Function to Remove Wastes From the Body?

Where do the wastes come from that are removed by the kidneys?

Why do infectious diseases such as scarlet fever and diphtheria injure the kidneys?

What is the chief function of perspiration?

Can we breathe through the skin?

Does the skin absorb moisture?

What makes the skin rough and chapped?

Why is frequent bathing important to the health of the skin?

What causes boils?

Make a drawing showing the position of the kidneys and bladder.

Read in a hygiene book about the work of the kidneys.

Draw a cross section of the skin showing the sweat glands and oil glands.

Write a note explaining how the temperature of the body is controlled.

See if you can improve the washing facilities in your school.

Make a cheap hand lotion to be used during the winter (glycerine and water will do).

7.—How Can One Build Strong, Well-formed Bones?

What is the purpose of a framework?

How is the skeleton adapted to make a superior framework?

When are the bones completely hardened?

Study the framework of the body on a chart or in a book. Notice what parts are made for protection; what parts for movement.

Get a bone from the butcher shop and study its structure. Notice how strength and lightness are obtained.

How are the joints made to get ease of movement without friction?

Why is sunshine important to bones?

Why is cod liver oil a good substitute for sunshine in the winter months?

What makes bow legs and knock-knees?

Does the right kind of food make one grow taller?

Examine a joint to see how it is made.

List foods that are good sources of calcium and phosphorus.

Grade each other's posture.

Find out the best first-aid treatment for a broken bone.

8.—What is the Best Way to Develop and Train the Muscles?

Why does exercise make bigger muscles?

Why does practice in learning to play a game make one play it better

What makes muscles ache after exercise?

What make one short of breath when playing hard?

What foods help to build muscles?

What muscles circulate our blood? Help us to talk? Allow us to breathe?

What is a sprain?

Why do great athletes abstain from the use of alcohol and tobacco?

Study a chart showing the muscles of the body. Notice the great number and the variety in size and shape.

Feel and locate several muscles in the body. Show how they produce movement by contraction and relaxation.

Examine a muscle from a chicken or small animal. Take a whole muscle with its attached tendon. Notice the difference between the body of the muscle and the tendon.

Examine some boiled beef. Notice that the muscle falls apart in bundles and that the bundles can be broken into thread-like fibres.

List the work done by muscles.

Find out the best first-aid treatment for sprains.

9.—What is the Best Way to Care for the Eyes and Ears?

How does the eye work?

What protection has nature given the eyes?

What part of the eye acts as a shutter?

How does the eye adjust itself to near and distant objects?

What is the best reading position?

What causes eye-strain?

Study a chart of the eyes and observe its parts.

Compare the eye with a camera.

Do some experiments to prove what is the best light for reading.

Criticize the lighting of your classroom.

Name the factors that must be considered in good lighting.

What is meant by astigmatism?

How do glasses correct eyesight?

Does boric acid strengthen the eyes?

What causes blindness?

What is pink eye? How is it spread?

What causes deafness? What causes a running ear?

What is the best way to blow the nose to prevent ear injury?

What causes a full sensation or noises in the ear?

Why is it important to see a doctor if one has ear trouble?

State the habits that tend to protect you against eye infections?

Find out the best way of taking a foreign body out of the eye.

Write a story on the history of spectacles.

Study a drawing of the ear to see how it works. Trace the path of the vibrations.

List the chief causes of deafness.

Find out the best way of removing a foreign body from the ear.

10.—How Can One Have a Well-adjusted Nervous System?

Why does playing games help the nervous system?

Having a hobby is a boon to the nervous system. Why?

What makes people feel jumpy and on edge?

What is the meaning of a nervous breakdown?

How do nerves carry messages?

Where are messages interpreted?

Can a cut nerve heal and function again?

What happens to the nerves to make us feel tired?

Why is it dangerous to kill a nerve in a tooth?

What effect has alcohol on the nervous system? Tobacco?

Look at a chart of the nervous system and observe its general plan.

Draw a nerve cell and describe how it functions.

Do a little experiment to prove that when a room is hot the nervous system tires more easily.

Dissect the nerve of a chicken and extract the nerve.

Name a few important nerves in the body.

Explain why sleep is so important to the nervous system.

Read about the care of the nervous system in a hygiene book.

Investigate the records of life insurance companies as to the relative longevity of users of alcohol and abstainers.

References for the Pupil:

Health for You; Crisp—Longmans Green Co.

Health Through Science; Charters, Smiley and Strang—Macmillan Co.

The Body's Needs; Charters, Smiley and Strang—The Macmillan Co.

Physiology and Health; Turner—D. C. Heath & Co.

Everyday Problems in Health; Wheat and Fitzpatrick—American Book Co.

Science and the Way to Health; Andress and Brown—Ginn & Co.

How We Live; Wood, Phelan and Others—Thos. Nelson.
Helping the Body Do Its Work; Andress, Goldberger and Hallock—Ginn and Co.
Personal and Public Health; Burkard, Chambers and Maroney—Ryerson Press.

REFERENCES FOR THE TEACHER:

Fundamentals of Health; Robertson—Copp, Clark Co.
The Human Body; Best and Taylor—Gage.
Fundamentals of Health; Kirkpatrick and Huettner—Ginn.
Hygiene for Students and Teachers; Eastwood—The Macmillan Co.
Alcohol—Its Relations to Human Efficiency and Longevity; Fisk—Funk and Wagnalls.
Alcohol—Its Effect on Mind and Efficiency—British Medical Research Council.

GRADE IX

UNIT I.—KEEPING THE COMMUNITY HEALTHY

1.—Providing a good water supply.

(See also the work in General Science on Water.)

(1) Qualities of good drinking water.
(2) Quantity required in cities, on farms, etc.; the relation of water supply to health; conservation of water.
(3) Means of obtaining a large supply of water for cities and towns; how water is delivered to the homes.
(4) Purification of water for cities and towns; action of sunlight and oxygen in a settling basin; how water is filtered; use of chemicals.
(5) Wells—kinds, placement, protection.
(6) Impurities in water—vegetable life, minerals, bacteria.
(7) Precautions taken to prevent contamination.
(8) Hard and soft waters; how water may be softened.
(9) Dispensing water in school and public places.

2.—Protecting the Community's Food Supply.

(a) Protecting the milk supply:
  (1) Why is it important to make regulations and to take precautions to protect milk.
  (2) Testing cows for tuberculosis—method used, significance.
  (3) Public Health regulations with regard to the sale of milk as set down in The Public Health Act, i.e., standards regarding butter-fat content, solids, number of bacteria, etc.
  (4) Scientific test used on milk; methods of pasteurization.
  (5) Plan of a modern city dairy.
  (6) Care of milk on the farm and in the home.

(b) Protecting the general food supply:

(1) Protecting the people against food adulteration; some of the regulations made by the Dominion and Provincial authorities.

(2) Inspection and grading of meats.

(3) Regulations regarding sanitation in places where food is sold—markets, stores, restaurants, etc.

(4) Grading of butter and eggs.

(5) How foods are likely to become contaminated and carry disease germs.

3.—The Sanitary Disposal of Wastes in the Community.

(a) The disposal of rubbish and garbage:

(1) Methods used by large cities to dispose of garbage.

(2) Care of garbage in the home.

(3) Keeping the farm free from rubbish and garbage.

(4) Why rubbish and garbage are a menace to health: breeding flies, source of disease germs, danger of fire, etc.

(b) The disposal of sewage:

(1) How sewage is disposed of in large cities.

(2) Sanitary disposal on the farm—use of cesspools, tanks, filters, etc.

(3) The process of oxidation by which wastes are broken down.

(4) Protecting streams and wells from contamination.

4.—Controlling Insect Pests in the Community.

(a) Eliminating the housefly; stages in the development of the fly; how flies carry disease; best means of exterminating flies.

(b) Controlling the mosquito pest.

5.—How Health Departments Serve the Community.

(a) The organization of the Provincial Health Department; the work of this department; some important Regulations made by this Department.

(b) The organization of the local health department; members of this department; how they promote the health of the community.

6.—How Hospitals and Sanatoria Serve the Community.

(a) Why hospitals are necessary in the community.

(b) How to keep up standards in our hospital service.

(c) How hospitals are classified and supported.

Unit II.—Keeping Oneself Healthy

Note.—The material of this unit may be correlated with Home Economics.

1.—Obtaining the Right Foods.

(a) Man's great effort to get an adequate food supply. Man's need for food, and his desire for a great variety of foods, have produced wars, migrations, discoveries, etc.

(b) What man has accomplished in obtaining foods. He has combed the earth's surface, adapted plants to different environments, developed superior plants through experimental breeding, and invented modern refrigeration, which allows fresh foods to be shipped to all parts of the world.

(c) What happens to food in the body; how it was discovered that food burns; the digestion and absorbtion of foods; the meaning of metabolism and the factors influencing it.

(d) The classification of foods and the significance of this classification—proteins, fats and carbohydrates.

(e) The sources and importance of minerals.

(f) The work of vitamins.

(g) How food values are estimated: the consideration of such factors as calories, class of food, minerals, vitamins and water.

(h) Building a good diet—things to consider; practice in estimating the food value of various menus.

(i) Checking the diet by its effect on health; weight and growth; well-formed bones; good muscle tone; sound teeth; colour of skin; energy and endurance.

(j) Food fads and fancies; learning not to be influenced by commercial advertising and diet faddists, but to form sound judgment regarding foods.

(k) Types of food poisoning, and protection against it.

(l) Alcohol not a food: the effect of alcohol taken into the stomach; absorbs quickly and is carried to all parts of the body; burns to produce a small amount of heat and energy; gives no building substances; acts as a narcotic, that is, slows body functions; in excess it destroys tissue, particularly of the liver and kidneys.

2.—The Importance of Sleep.

(a) The physiological need for sleep—for growth, for repair of tissues, for removal of wastes, etc.

(b) The conditions necessary for healthful sleep; the amount of sleep needed in relation to age, activity, and underweight.

3.—The Need for Exercise Out-of-Doors.

(a) The development of muscle co-ordination and tone through sports; improvement of posture; ease and grace of movement.

(b) The general improvement of all bodily functions through exercise—digestion, circulation, respiration, elimination.

(c) The social value of games.

4.—Why Cleanliness is Important to Health.

(a) The need for frequent bathing—the physiological effect on the skin; the antiseptic properties of soap; the value of baths for rest stimulation.

(b) The importance of brushing the teeth twice a day; prevention of decay; stimulation of circulation in the gums. Discrimination in the choice of tooth brushes and dentifrices; the merits of advertised dental preparations.

(c) Care of nails and the hair.

5.—Selection and Care of Clothing.

(a) Differences in use and wearing qualities of various kinds of cloth, such as silk, wool, cotton and rayon. How fabrics are made, treated, and adulterated. The need for wise choice in buying clothes.

(b) How one should take care of clothes. Why soap removes stains and grease. The effect of hot water on wool. Why blueing is used. Proper ironing, especially of rayon fabrics. How to remove stains and spots.

(c) Good shoes—points of a good shoe; how shoes are made; disadvantages of rubber shoes or rubber soles; making sure that one is well fitted.

6.—Care of Special Organs: Eyes, Ears, Nose and Throat.

(a) Common defects in eyesight; prevention of eye infections; care of the eyes.

(b) Cause of deafness; prevention of ear infections; danger of a running ear; care of ears.

(c) Position and function of the tonsils and adenoids; why they become infected and enlarged and the effect on general health; the prevention and care of colds and sore throats.

7.—Keeping Free of Communicable Diseases.

(a) Why many diseases have been almost eliminated; e.g., small-pox, diphtheria, typhoid fever.

(b) The importance of acquiring immunity through vaccination or inoculation; what happens within the body to establish immunity.

(c) The diseases of adolescence; e.g., tuberculosis.

(d) Building up a high resistance to disease. Sufficient rest, outdoor exercise, regular meals, etc. Use of alcohol lowers resistance to disease, particularly pneumonia.

(e) Keeping health regulations; such as those regarding isolation and quarantine.

8.—Developing Good Mental Habits.

(a) Mental and emotional health. Learn to take a keen active interest in friends, games and hobbies; learn to persevere in work, to meet disappointments bravely, to forget grudges quickly, to enjoy humorous situations, to be tolerant of the opinions of others, etc.

(b) Establish good social relationships. Be friendly towards others; take part in games and other social activities; appreciate what others can do, and try to do a few things well.

(c) The economy of habit and the need to form correct habits; habits ease the strain on the nervous system; some harmful habits are easily formed such as the use of tobacco, drugs and alcohol.

(d) Develop critical judgments. Learn to weigh and measure or evaluate the things in life. Don't be influenced by the opinions of others without thinking through the problem for oneself. Try to form sound judgments on such things as patent medicines, cosmetics and the use of alcohol and tobacco.

No programme in Health Education for adolescents can be complete without a treatment of the use of alcohol and tobacco, and instruction in social hygiene. Nevertheless, these topics do not easily lend themselves to school instruction, and the latter, especially, has a peculiar potency for irritating the sensibilities and provoking misunderstanding. It is the consensus of competent opinion that in teaching the hygiene of alcohol and tobacco, more is gained by the "method of indirection" than by a direct frontal attack on the subject. Only proved facts should be stated, for the reason that good intentions do not make up for a want of scientific accuracy and authenticity. It is not difficult for the teacher to introduce the topic effectively when dealing with the functions of the heart or the nervous system. In such a case the treatment is incidental and subsidiary, but none the less convincing. The problem of alcohol should be kept in its proper perspective. It is not only a health problem, but a social and economic problem as well.

Suggestion.

Have the pupils conduct a survey of health habits in the school and the community.

Unit III.—Learning to Prevent Accidents, and Being Ready to Meet Emergencies

1.—Prevention of Accidents.

(a) In Alberta, accidents stand third in the list of causes of death. The pupils should obtain figures on mortality, both from the Provincial and from the Dominion Bureau of Statistics. They should also tabulate the causes of accidents. from newspaper accounts.

(b) What is to be done to prevent motor accidents? Study traffic and highway regulations; precautions to be taken both by driver and pedestrian. Why are motor-car accidents increasing at an amazing rate?

Alcohol is one of the causes of motor accidents as it slows up the reaction time of the nervous system. It takes longer to see, interpret danger and apply brakes; nervous control and motor co-ordination are definitely reduced by alcohol. It interferes with judgment and increases errors.

(c) Prevention of accidents in the home—particular attention to fire, electricity, gas.

2.—Knowing What to Do in An Emergency.

(a) What to do for simple injuries: the best first-aid treatment for a cut, a bruise, a burn, a sprained ankle, or a frost-bite.

(b) How to check bleeding: e.g., from the nose, or from a blood vessel in the arm or leg; internal bleeding.

(c) What to do in case of asphyxiation—from apparent drowning, from smoke or gas poisoning, from electric shock.

(d) What to do if you suspect a broken bone. How to recognize a fracture; what to do for a simple and a compound fracture.

(e) What to do if you suspect poisoning. How to recognize poisoning; how to determine the treatment for poisoning. The best treatment for a few common types of poisoning.

(f) Planning an emergency cupboard or a first-aid kit for home or school—drugs needed; how to make sterile dressings at home; how to improvise splints, slings, etc.

Reference Books

For the Teacher:

"Vitality Through Planned Nutrition"; Davis—Macmillan
Bulletins from Nutrition Division, Dept. of Health, Ottawa.
"Fundamentals of Health"; Kirkpatrick & Huettner—Ginn.
"The Human Body"; Best and Taylor—Gage.
"Foundations of Nutrition"; Rose—Macmillan.
"Teaching Nutrition to Boys and Girls"; Rose—Macmillan.
"Nutrition and Physical Fitness"; Bozert—Saunders.
"Home and Community Hygiene"; Broadhurst—Lippincott.
"Everyday Problems in Science"; Pieper and Beauchamp—Gage.
"Personal Hygiene Applied"; Williams—Saunders.
"St. John Ambulance Society Book on First Aid."
"Everday Living for Girls"; Van Duzen and Others—Lippincott.
"American Red Cross Textbook on Home Hygiene and Care of the Sick"; Delano—P. Blakiston's Son and Co.
"American Red Cross Text Book on First Aid"—P. Blakiston's Son and Co.
"Health and Achievement"; Cockefair and Cockefair—Ginn and Co.

For the Pupils:

"Science in the Service of Health"; Downing—Longmans, Green.
"Useful Science," Book II; Weed and Rexford—Winston.
"Health Through Science"; Charters, Smiley & Strang—Mac millan.
"The Hunger Fighters"; DeKruif—Harcourt-Brace.
"Community Health"; Turner and Collins—Heath.
"Physiology and Health"; Turner —Heath.
"Everday Problems in Health"; Wheat and Fitzpatrick—American Book Co.

"Science and the Way to Health"; Andress and Brown—Ginn.
"The Healthy Home and Community"; Andress, Goldberger and Hallock—Ginn.
"Foundations of Health"; Rathbone, Bacon and Keene—Houghton Mifflin.
"Who Travels There"; Buckley, White, Adams and Silvernale.—Gage.
"Canadian Red Cross Book on First Aid";—Canadian Red Cross Society, Customs Bldg., Calgary.
Bulletins from the Dept. of Health, Edmonton, Alberta.

B.—PHYSICAL EDUCATION

Physical Education forms an integral part of the way of living. It seeks to improve and enrich life, and to add those qualities to personal and group living which have been found to result in a more complete and satisfactory mode of life. It encompasses not only courage, endurance and strength, which are the natural attributes of play, but also imagination, joyousness and pride, which are the spirit of good living. Physical education is part of the pattern of education offered not only by schools but by life itself to make honest, worthy, competent and healthy people.

It must be kept in mind that the ultimate objective of physical education is not in terms of motor skills, physical development and organic power. The aim is higher than profuse perspiration, strong muscles, victorious teams, or even health. Physical education seeks to be a part of everyday living which fits individuals to contribute to the society in which they live, and to enjoy that society. With this aim in mind, we must ask ourselves what type of education, including physical education, will tend to give the best adjustment to life as we know it now, and as boys and girls of today we may know it in the future.

We must take cognizance of the fact that society has become highly mechanized; that there is less activity in work with more hours for leisure-time activities. One of the results of our complicated and mechanized society is more emotional and nervous strain. It has been estimated that of all our boys and girls now in school as many will enter mental institutions as will enter university. Physical education has a large part to play in meeting this serious problem; for physical activity provides an outlet against strains, and through the delight of physical activity and pleasant social contacts, there is emotional release and a prospect of wide channels of happiness.

With the advent of professional teams, radio, automobile and moves, there is a strong bid for leisure hours to be spent in passive recreation, where participation means looking, listening and sitting. This situation offers a challenge to physical education to make its programme so vital and so worthwhile that every individual desires to participate with others in some form of physical activity. Participation with others is extremely important, for physical education is a tool which the teacher may use in the development of a child's personality. In planning, in participating, in suggesting and appraising, in leadership and fellowship, the child learns the essentials of co-operative living.

Since the keynote to a successful physical-education programme is participation, there must be a wide selection of activities to meet varying interests, muscle development, strength and skill. The teacher must accordingly make the selections from the variety of activities suggested in this course. Fundamental exercises or calisthenics have come in for criticism, but there seems little to take their place as warming-up exercises. When they are well planned, most children enjoy their rhythm and precision. Games, dancing, tumbling, pyramid building and training for track sports offer a tremendous variety of physical activity from which the teacher will select, keeping in mind the interests of the class, the time of year, the equipment and space available. In short, the teacher in choosing activities must strike a balance between the educational, developmental, aesthetic and purely recreational types of activity. In activities for girls there must be emphasis on line, colour, skill and co-ordination of movement, whereas in a programme for boys more emphasis may be placed in speed, endurance and strength. Although physical education may lend itself to the correction of physical defects, a physical-education programme does not aim to correct specific defects in individuals. General activity tends to strengthen muscles and so improve such defects as round-shoulders. flat chest and protruding abdomen; but teachers of physical education should not attempt special corrective exercises except under the advice and direction of a physician. There should be close co-operation between the medical and nursing service and the physical education instructor. Students are apt to attempt more than they can do, and to keep up an activity beyond the limit of their endurance. The teacher should be aware of types of physical handicaps present among the members of the class, and see that students stay within the limits of their physical ability. It is important, too, to remember that all physical activity must be limited after any illness that confines an individual to bed for several days. Much harm can be done by severe exercise following infectious disease such as influenza, measles and tonsillitis.

It is difficult to carry on a good programme of activities unless students are dressed in suitable gymnasium or outdoor costume that will allow freedom of movement with no worry over immodest exposure. For girls a one-piece gymnasium costume with close-fitting shorts seems to be the most practical, and for boys shorts and singlet. The teacher should insist on the wearing of low-heeled rubber-soled shoes. Gymnasium costumes should be changed immediately at the end of the instruction period, and the instructor should plan his period to allow time for this. If showers are not available, the teacher should insist that each student have a good rub-down with a coarse towel.

The physical education teacher has a unique opportunity to assist with a guidance programme in the school. Such a programme aims at the building of a sound personality through the discovery of personal problems growing out of human relations, and the giving of help and guidance in working out the best solutions to these problems. The physical-education teacher, because of close and informal contact with students, has a good opportunity to discover these problems. Moreover, the nature of an activity programme lends itself to the discover of traits of personality and of character.

It has been generally admitted that talks, books and the academic presentation of facts are not as effective in character-building as sports and group games. In learning to come to practice on time, in submitting to the rules of the game, in deferring to the decisions of the umpire, in accepting discipline, the boy or girl is developing personality. The physical-education teacher has unusual opportunities for personal talks with students on dress, social deportment, personal appearance and other problems which trouble the adolescent.

There is a tendency to think of rhythmic exercises as the basis of the physical-education programme, but probably no more than 15 per cent. of the total time allotment should be given to this phase of the work. The required activities are rhythmic exercises and group games and these should take about 50 per cent. of the time; the balance should be divided amongst the electives, which are dancing, tumbling, pyramid building, team games, individual athletics and track sports.

Aims and Objectives of Physical Education:

Physical education is education through physical activities, and aims, not merely at the physical, but at the *all-round development* of the pupil.

This *aim* must be interpreted in terms of *objectives,* or the specific steps by which the aim is reached:

(i) The development of the body, including health and organic vigor, muscular development and posture; and the correction of remedial defects.

(ii) The development of the individual socially, in desirable personality traits (leadership, co-operation, sportsmanship, courage and persistence, self-confidence, initiative, self-discipline).

(iii) The development of skills: games, sport, rhythmic, fundamental motor skills.

(iv) The development of an interest in various forms of physical activity, which will cause the individual to engage in such activities both during and after school life: a participation type of interest.

(v) Education for leisure time: the recreational aspect.

RHYTHMIC EXERCISES

The trend in recent years towards disguising all forms of physical activity as games or dances is already being questioned. The occurrence of a startling number of knee, ankle, and shoulder injuries, the incidence of heart conditions aggravated by overstrenuous athletics in adolescence, and the lack of good muscle tone in the whole populace, all point to the need for some form of controlled muscular development in the schools. Such a programme should include all pupils, build them up to the point where sports participation will be less dangerous, and provide them with an easy, interesting form of exercise that will assist in developing all parts of the muscular system.

In adolescence, both boys and girls are interested in their physiques, and seek improvement if they are shown the way. Danc-

ing will improve posture and graceful movement, but does not adapt itself so readily in crowded floor conditions, and usually requires equipment in the form of piano or phonograph. In some districts, too, there is a religious taboo on dancing. Rhythmic exercises may be adapted to the floor space available, and to the needs and abilities of the pupils concerned. It gives each participant an equal chance with others, and there is co-operation without competition. The same pleasure of accomplishment is to be found in rhythmic exercises as is characteristic of the dance.

Formerly, exercises were used for the disciplinary effects as much as for the benefit to be derived from physical activity. Much of the period was wasted in standing the class at ease, and bringing them to attention. The exercises chosen were stilted and jerky, in no way imitating natural graceful, bodily movements. Emphasis was on position and precision. The teacher was the centre of interest. Rhythmic exercises may be conducted so as to be free from these objectionable features.

Listed below are some helpful suggestions:

1. *Choice of Rhythmic Movements.* These should approximate natural bodily movements, and should allow a definite beat throughout.
2. *Continuous Activity.* While one exercise is in progress, the leader gives a brief oral description of the next exercise. After a pause he gives a warning word right on the beat, and after a second pause, gives the executive word (to change) on the second beat of the exercise which the class is performing. The class finishes the last beat of the old exercise, and swings into the new without pause. Breaks are not usually needed, but may be introduced to relieve monotony or fatigue.
3. *Allowance for Individual Differences.* Though all pupils do the exercise, it is not assumed that they all use equal vigor. Those physically unfit may watch certain drills for which they are unsuited. The others use the same beat but carry on as individuals, in that they spring only as far as the body is able. As they develop more skill and greater strength and flexibility, they bend or swing just that much farther.
4. *Progression.* The same exercise may be done more vigorously, although to the same rhythmic beat. Different starting positions may be used so that the effects of movement may be concentrated in the one large-muscle group. For example, armswings, forward, backward, and upward, have a greater effect upon the shoulder girdle when performed from a kneeling position.
5. *Leverage and Recoil.* The weight of the body or of the limbs is used to get more benefit from the exercise. The natural recoil of the muscles determines the extent to which one recovers from a swing.
6. *Relaxation.* While some exercises are very vigorous, they may be followed by other exercises that are relaxing in nature, and effect another muscle group. No one part is worked to the point of exhaustion.

7. *Tone of the Lesson.* A spirit of fun should prevail throughout the lesson. Stimulated by encouragement from the leader, pupils will derive pleasure from doing the exercises well.

The Commands in Rhythmic Exercises:

While the commands "Ready," "Begin," "Stop," and "Go" are considered to be standard, there is no objection to the use of other commands, provided they are easily understood and remain standard within the classroom or within the school system which transfers pupils from one school to another. The Danish word, "com," for instance, is an excellent executive word denoting "Commence," and might be used as such. "Halt" is used only for marching.

Commands are in three parts:

1. *Description of the Next Exercise.* This is given in with the best to aid the class in keeping time, and is followed by a pause to ensure that the class will be able to understand the command.
2. *A Warning Word.* This is given on the beat to signify that the change is coming very soon, and is followed by another pause; e.g., "Ready" or "Class."
3. *The Executive Word.* This is given exactly on the second last beat of the old exercise.

The command should be given in a quiet but firm voice, friendly in nature, and loud enough to be heard distinctly througout the room.

Choice of Exercises:

1. *Source.* While the 1933 Syllabus, "Recreation and Physical Fitness for Boys and Men" and "Recreational and Physical Fitness for Girls and Women" are very good sources of material for use in rhythmic exercises, the teacher should feel free to select interesting movements from any source if they are suitable to the age-group of the pupils.
2. *Order.* Vigorous exercises should always be followed by relaxing movements. The order as given in the 1933 Syllabus is satisfactory, provided the teacher does not allow it to become too formal.
3. *Linking Exercises.* These may be used to provide relaxation between two vigorous exercises or to effect a more natural change where movement from one to the other would be difficult.
4. *Tables.* While it may be better at first to work on one table, the ideal situation in rhythmic exercises should be variation in choice from day to day with no pre-arranged series of activities.
5. *Length of Period.* The time allotted to rhythmic exercises in these grades should be about ten minutes. It is not intended that they be used every period, but should occupy approximately 15% of the total time.
6. *Position of Teacher.* While at first the teacher may do the exercises with the class to get the pupils working together, he should gradually forego this procedure, until finally all changes are made by oral command. The teacher's position is not necessarily at the front of the class. He should be

moving about so that he may be in the best position to help individuals. Leaders with a good sense of rhythm could be placed at the front of the class.

7. *Use of Music.* Music may be introduced for all introductory and rhythmic jumping activities. For variety, a table may be built to 4/4 time using only exercises of 2, 4, or 8 beats, and having a definite sequence and a pre-arranged number repetitions of each exercise. Ordinarily, however, music tends to detract from the effectiveness of the exercise.

GROUP GAMES OF LOW ORGANIZATION

Exercise is not only easier to take when it is enjoyable, but is actually more beneficial. For this reason alone, active group games and contests should form an integral part of all worthwhile physical training. But there are other considerations; such as teamwork and sportsmanship, which justify the inclusion of these activities in any properly balanced programme of physical education.

Contests are merely comparisons of ability along special lines; but group games involve the constant and deliberate interference on the part of the opposition. The resultant opportunities and emergencies call for quick decisions and action. To make all such group activity as fair as possible, the instructor must always be careful to give simple yet precise directions so that no one participant can have the slightest doubt as to what is expected. An atmosphere of keen good fun should prevail during all games.

The equipment available, the type of building, the size and age of the participant as well as their sex will determine the suitability of any one game. By "group games" we mean those games in which all the assembled group can participate at one time.

Equipment for these games is usually scarce, but it has been suggested that bean bags, broom handles, ropes, tennis balls, paper bags, old car tires, horse shoes, wooden racquets or bats, rubber rings, etc., can be used to supplement the available supply. These can all be obtained easily and cheaply in the average community.

It is not intended that group games be used as time-fillers at the end of a period of formal exercises. Games which are informal exercises can and should be arranged to "warm-up" the pupils for tumbling, vaulting, or pyramid building, as well as for team games.

References:

Gard.—Gardner, Ella. *Handbook for Recreation Leaders,* U.S. Department of Labor, Children's Bureau, Publication No. 231, U.S. Government Printing Office, Washington, D.C., 1936.

N.R.A.—*Games for the Playground,* Some Typical Active and Quiet Games for Children from Six to Fourteen Years of Age. National Recreation Association, New York City, 1936.

Ban.—Bancroft, Jessie H., *Games,* New York, The Macmillan Co., 1937.

LaS.—La Salle, Dorothy, *Play Activities for Elementary Schools,* A. S. Barnes and Co., 1930, New York.

N. & V.—Neilson and Van Hagen, *Physical Education for Elementary Schools,* New York, A. S. Barnes and Co., 1930.

Classified List of Games of Low Organization

Name of Game	*Type*	*Age*	*Equip.*	*Formation*	*Organization*	*Space*	*References*
All Up Relay	Act.—Relay	6—18	Indian Club	Line	Team	Med.	N.R.A., p. 13
Arch Ball	Act.—Relay	12—18	Ball	Line	Team	Med.	Ban., p. 426
Ball Stand	Act.—Accur.	12—18	Ball, B. Bag		Group	Large	Ban., p. 478
Band Obstacle Race	Act.—Relay	12 & up	Band	Line	Team	Med.	Ban., p. 60
Boiler Burst	Act.—Chas'g.	12—14			Group	Large	N. & V., p. 167
Bull Dog Pull	Act.—Streng.	12—14	Strap		Dual	Ltd.	Gard., p. 71
Categories	Q't.—Men.	12—14	Pen & Paper		Group	Ltd.	N.R.A., p. 29
Catch and Pull Tug of War	Act.—Streng.	12—18		Line	Team	Large	Ban., p. 73
Centipede	Act.—Chas'g.	9—18		Circle	Group	Med.	Ban., p. 75
Chicken Fight	Act.—Streng.	9—18			Dual	Med.	Gard., p. 71
Chinese Wall	Act.—Chas'g.	12—18			Group	Large	Ban., p. 80
Circle Stride Ball	Act.—Accur.	9—18	Ball	Circle	Group	Med.	N.R.A., p. 14
Circle Strike	Act.—Skill	9—14	Ball	Circle	Group	Large	N.R.A., p. 24
Club Snatch	Act.—Chas'g.	9—14	Indian Club	Line	Team	Med.	Ban., p. 82
Cork Screw	Act.—R'n'g.	9—18	Chair	Line	Team	Med.	Ban., p. 85
Corner Ball	Act.—Accur.	9—14	Ball	Line	Team	Med.	Ban., p. 502
Couple Hit Pin	Act.—Accur.	9—14	Ball, Indian Club	Couples	Team	Med.	Ban., p. 280
Dictionary	Q't.—Men.	12—up			Group	Ltd.	Gard., p. 73
Famous Facts and Faces	Q't.—Men.	12—up			Group	Ltd.	Gard., p. 10
Farmer in the Dell	Act.—Sing.	6— 8		Circle	Group	Med.	Ban., p. 347
Forcing the City Gates	Act.—Streng.	12—14		Line	Team	Med.	Ban., p. 97
Four Choice	Q't.—Men.	12—up	Object		Group	Ltd.	Gard., p. 59
Fox and Cheese	Act.—Chas'g.	9—18		Spoke	Group	Med.	Ban., p. 101
Ghosts	Q't.—Men.	12—14			Group	Ltd.	Gard., p. 54
Going to Jerusalem	Act.—Men.	9—14	Chairs	Line	Group	Med.	Ban., p. 107
Hand Push	Act.—Streng.	9—14			Dual	Ltd.	Gard., p. 71
Hands Up, Hands Down	Q't.—Skill	9—18	Object		Team	Ltd.	Ban., p. 386
Hook on Tag	Act.—Tag.	12—14		Threes	Group	Large	N.R.A., p. 5

Classified List of Games of Low Organization—Continued

Name of Game	*Type*	*Age*	*Equip.*	*Formation*	*Organization*	*Space*	*References*
Indian Club Guard	Act.—Accur.	9—14	Indian Club, Ball		Group	Med	N.R.A., p. 24
Last Couple Out	Act.—Chas'g	12—up		Line	Group	Large	Gard., p. 129
Master of the Ring	Act.—Streng.	12—18		Circle	Group	Med	Ban., p. 162
Maze Tag	Act.—Chas'g	9—18		Line	Group	Med	N. & V., p. 162
My Lady's Lap Dog	Q't.—Men.	12—up		Circle	Group	Ltd	Ban., p. 296
Name Chain	Q't.—Men.	12—up			Group	Ltd	Gard., p. 10
Over-Under Relay	Act.—Relay	9—18	Object	Line	Team	Med	Gard., p. 31
Pig in the Hole	Act.—Chas'g.	12—14	Wand	Circle	Group	Large	Ban., p. 183
Poison Snake	Act.—Skill	12—up	Object	Circle	Group	Med	Gard., p. 14
Popularity	Act.—Rhy'm	12—14		Circle	Group	Med	Gard., p. 16
Prince of Paris	Q't.—Men.	12—14		Circle	Group	Ltd	N.R.A., p. 17
Ride Him Cowboy	Act.—Tag.	12—14		Threes	Group	Med	Gard., p. 28
Ring-a-Liezio	Act.—Hunt'g.	12—14			Team	Large	Ban., p. 204
Rooster Fight	Act.—Skill	12—14			Dual	Med	Gard., p. 71
Simon Says	Q't.—Men	6—18			Group	Ltd	N.R.A., p. 7
Snatch the Handkerchief	Act.—Skill	9—14	Object	Line	Team	Med	Gard., p. 27
Spanish Fly	Act.—Skill	9—14		Line	Group	Med	N.R.A., p. 10
Spoke Relay	Act.—Relay	12—14		Spoke	Group	Med	Ban., p. 230
Tea Kettle	Q't.—Men.	12—up			Group	Ltd	Gard., p. 56
Temple Reading	Q't.—Men	12—up			Group	Ltd	Gard., p. 58
Tidbits Farmer	Q't.—Men	12—up	Pen & Paper		Group	Ltd	Ban., p. 311
Tossing Wands	Act.—Accur.	12—14	Wand	Line	Team	Med	Ban., p. 250
Touch and Go	Act.—Relay	6—18		Line	Team	Ltd	Gard., p. 32
Twist Stick	Act.—Streng.	12—14	Wand		Dual	Ltd	Gard., p. 72
Tug of War	Act.—Streng.	12—14	Rope	Line	Team	Med	LaS., p. 93
Wolf	Act.—Hunt'g.	12—14			Team	Large	Ban., p. 262
Wrong Capitals	Q't.—Men	12—up			Group	Ltd	Gard., p. 74

INDIVIDUAL SPORTS AND GAMES

One function of any physical-education programme should be to give the student habits of play which will carry over into adult life. While some team games are played by adults, they prefer the individual competitive type of game, such as tennis or golf. This part of the programme, therefore, should be exploratory in nature; and in the intermediate school, fundamental skills may be partially acquired. What is desired in this age group is a broad acquaintance with a great number of individual sports rather than tournament skill in one. Suggested activities are tennis, badminton, swimming, archery, quoits, horse shoes, boxing, wrestling, table tennis, bowling, golf, hand ball, shuffle board, skating, curling, skiing, hiking, camping.

The responsibility of the school for this type of activity has never been clearly defined. Frequently these activities are sponsored by some outside agency. While it is hardly possible for the school to become directly responsible for every physical activity of its students, some indirect supervision and guidance from the school would be highly desirable. Some, at least, of the activities mentioned above, notably camping and hiking, might well be integrated with other school activities, such as nature study in Science. The others, when carried on as part of the school programme, should probably take the form of club activities; e.g., those of a boxing club, swimming club or ski club.

TEAM GAMES

The aim in team games is not to produce specialists, but to have *as many pupils as possible participate in a great variety of games.* In many cases it is desirable to sacrifice top performance for group participation.

Teachers should qualify themselves as competent referees so that "fair play" becomes the keynote of participation. The latest rules for these games may be obtained through any sporting-goods store.

The following are recommended as suitable team games:

For Boys and Girls	*For Boys Only*	*For Girls Only*
Volleyball	Rugby: 12-man, 6-man	Field Hockey
Basketball	Aerial or Touch	
Softball	Nobbies	
Broomball	Soccer	
Speedball	Baseball	
	Hockey	

It is recommended further:

(i) That not just one or two of the foregoing should be taught, but that a student should be given a chance to sample as many as possible.

(ii) That in so far as possible a student should acquire reasonable proficiency in at least 50% of the games listed.

(iii) That in the teaching of each of the above-mentioned games, an effort should be made to analyze the game

into its fundamental skills, and that the class should be given practice in those skills. It is fully recognized that such practice may be deadly dull unless it is in some way related to the playing of the game, which is the thing in which the student is chiefly interested. Probably practice in fundamentals *as drill* should not come until after the student has had a chance to play the game and has seen the need for practice in the fundamentals of the game. However, much valuable practice in fundamentals of team games may be given in the form of *lead-up* games, which are sufficiently interesting to the student in themselves, and provide the needed practice as well. These may be played in the class period before the team game is introduced. The numbers taking part in the class period often make the playing of a team game impracticable.

Example—Softball.

The fundamental skills of softball are throwing, catching thrown balls, fielding high balls, fielding grounders, pitching, baserunning, batting.

Suggestion.—Set standards in each of these, in accordance with the ability of the group; e.g., standard in fielding high balls—ability to catch 8 to 10 high balls batted to fall within a marked area (size of area may vary for different groups). Standard in batting—ability to hit 5 of 10 moderately pitched balls to a designated spot (e.g., between third and short, between first and second, near first), or ability to hit a moderately pitched ball a certain distance (power batting test). These standards might be made the basis of practice in these skills.

DANCING

Dancing includes tap, social, folk, and "natural" dancing. The first is a fine type of activity, but few teachers are qualified to teach it. There are still fewer teachers who can teach "natural" dancing. Social and folk-dancing are therefore the two most likely to be taught.

It is questionable whether social dancing should ever be taught either to boys or to girls alone. From the viewpoint of efficient teaching, it is bad to have girls lead or to have boys follow. Many of the social values, moreover, are lost in any but a mixed group Social dancing is an experience that normally involves a member of the opposite sex, and is therefore best and most naturally taught to a mixed group. Care should be taken to develop social skills as well as skill in the mechanics of the dance.

Social Dancing:

It is recommended that social dancing should be taught as a mixed-group activity, either during the physical education period or after school hours. Basic steps such as the one-step, two-step, waltz, schottische, and polka may be taught.

Folk-dancing:

This is a wholesome activity with a satisfying mental and social outcome. It aims to create a natural and enjoyable social atmos-

phere by attempting to increase an individual's poise and ease in handling himself. This purpose is accomplished through mastery of simple folk-dance techniques and patterns, and by the adaptation of the individual to the group with which he dances. This form of dancing should be made interesting and meaningful by the introduction of such correlated subjects as folk music, characteristics of various races and nationalities, folk art, costume, folk lore, tales and literature. This form of physical activity provides opportunities for the development of the rhythmic instinct through the timing of free and natural movement with simple music forms.

Suggestions on Teaching:

Folk-dancing can probably be taught best to a mixed group. It can be taught successfully to girls alone, but not so well to boys.

In organizing classes in folk-dancing, the teacher should acquaint herself with the general cultural background of the community and choose dances familiar to the groups of different national origin within the community. Folk music is so arranged that it may be played by a student accompanist or it may be sung by the dancers. If a Victrola is available, there is a wide selection of Victor and Columbia records from which to choose. The work may be adjusted to a classroom, a large gymnasium, a hall, or an outdoor playfield. Since satisfaction in this form of movement comes early, folk-dancing may be adapted to a short period, yet it supplies a wide variety of activity for the longer class time. Folk-dances also lend themselves to work with small numbers and with very large groups.

Two types of teaching approach may be mentioned. The musical approach has been found effective. The teacher reviews the characteristics of folk music with its simple musical form, singable melody and frequent repetition. A particular selection may be discussed as to time signature, possibilities in dance form, determination of melody, phrases, climax, etc. The character approach has many possibilities. Since folk-dances reflect the characteristics of people, they are influenced by location, climate, occupations, general artistic development, music, and political and social history. Students may be interested in doing some research on correlated folk problems.

In the actual teaching procedure, it will be found helpful to place the dance in its natural setting. Listen to the music to catch its mood, and then learn the step pattern and the floor pattern. There should be demonstration, imitation and frequent review.

It should be remembered that in education *dancing is for the benefit of the student.* It presupposes no onlookers; it is done with and not for others. Just to dance is not enough: the student must dance with satisfaction.

The following list of dances is *suggestive only.* It should be adapted or supplemented by the teacher to meet the needs of the class:

First Year:

Crested Hen—Danish—Neilson and Van Hagen—Physical Education for Schools.

Highland Schottische—Scotch—Neilson and Van Hagen—Physical Education for Schools.
The Mangle—Danish—Neilson and Van Hagen—Physical Education for Schools.
Old Dan Tucker II—American—Neilson and Van Hagen—Physical Education for Schools.
Rye Waltz—American—Neilson and Van Hagen—Physical Education for Schools.
Schottische Couple Dance—American—Neilson and Van Hagen—Physical Education for Schools.
Tantoli—Swedish—Ward Crampton—The Folk Dance Book.
Irish Lilt—Irish—Ward Crampton—The Folk Dance Book.

SECOND YEAR:

Minuet—French—Neilson and Van Hagen—Physical Education for Schools.
Mallebrok—Danish—Neilson and Van Hagen—Physical Education for Schools.
May Pole Dance—English—Neilson and Van Hagen—Physical Education for Schools.
Military Schottische—American—Neilson and Van Hagen—Physical Education for Schools.
The Girl I Left Behind Me—American—Neilson and Van Hagen—Physical Education for Schools.
Rheinlander—Swedish—Neilson and Van Hagen—Physical Education for Schools.

THIRD YEAR:

Tatra—Carpathian—Chalif-Folk Dances of Different Nations, Vol. 3.
Ritka—Hungarian—Chalif-Folk Dances of Different Nations, Vol. 3.
Black Nag—English—Cecil Sharp—Country Dance, Book II.
St. Patrick's Day—Irish—Burchenal—Folk Dances and Singing Games.
The Hatter—Danish—LaSalle—Rhythms and Dances.
Captain Jinks—American—LaSalle—Rhythms and Dances.
Three Dance—Danish—Burchenal—Folk Dances of Denmark.

TUMBLING AND PYRAMID BUILDING

Tumbling and pyramid building are activities that are valuable in developing suppleness, poise, balance, and co-ordination; and they are especially beneficial to the abdominal muscles.

These activities may be carried on out-of-doors (when weather permits), on a plot of soft ground. Mats are necessary for indoor work, and where standard tumbling mats are not available, old mattresses or straw ticks may be used. If the mat is small, care must be taken to prevent it from slipping.

Participation in tumbling and pyramid building should not be made compulsory. The teacher must be careful to allow only those who are physically fit to take part.

The feeling of self-confidence essential to good performance should be developed by (1) thorough grounding in the simple activities; (2) gradual progression to more difficult ones.

TUMBLING

With intermediate-school pupils, the aim in tumbling should be the smooth execution of simple stunts rather than the introduction of advanced activities. One must guard against catering to the few more expert members of the class, to the neglect of the others; for it is the latter who will derive the greater benefit from encouragement and assistance.

Pupils should not be allowed to attempt tumbling exercises for which they are not sufficiently well prepared. For example, dives should not be attempted before smooth, easy performance of the forward roll has been perfected.

The following is a list of tumbling exercises which may be used, given in a possible progression:

1. Neckstand.
2. Forward roll—crouch start.
3. Headstand—with support.
4. Handstand—against wall and with pupil support.
5. Forward roll—running start.
6. Headstand—finishing with roll.
7. Handstand—against wall—no support.
8. Handstand—with support away from wall.
9. Backward roll—as finish to forward roll.
10. Backward roll—sitting start.
11. Backward roll—standing start.
12. Cartwheel.
13. Dive over low rolled mat.
14. Dive over one in prone kneeling.
15. Chest balance—with support.
16. Chest balance—without support.
17. Forearm balance against wall.
18. Knee—shoulder balance.
19. Headspring.
20. Handspring.
21. Snap-up.
22. Back roll to handstand.
23. Knee-flip.
24. Walking on hands.

For extra practice, rolls and dives may be performed in teams of two's and three's. Uniformity and precision should be stressed, in order to develop control. Classes or individuals with special ability may be encouraged to do advanced work.

The following exercises with the *horizontal bar* may be suggested here:

Circle under the bar (Skin the cat).
Mount with left or right leg acting.
Front circle with reverse or front grasp.
Back circle.
Sit swing-off.
Sit swing-round.
Hack swing-off.
Upstart.
Splits up.
Plymouth.

Reference:

"Horizontal Bar Exercises" by Staff-Sergt. Moss; Harold A. Wilson Co., Toronto, 60c.

The following are suitable exercises with the *box horse*:

Feet on, straddle off.
Forward roll and straddle vault.
Feet on, roll off.
Rear right vault.
Forward roll vault.
Long straddle vault.
Neck spring vault.
Head spring vault.
Hand spring vault.
Feet through vault.

References:

"Vaulting"; Percy Bikerdike; Harold A. Wilson Company.
"Physical Education for Schools and Colleges": Barker (pages 158-9, 160).

PYRAMID BUILDING

Pyramid building provides an incentive for the improved performance of the numerous balance exercises listed in the preceding section. This activity is suitable for classes of varied stature and abilities, as many of the positions are suitable for those who find difficulty in balancing.

Pyramids for girls and boys of intermediate-school age must be very carefully chosen, as serious strain may result from positions requiring heavy lifting or supporting. Emphasis should be placed, not on the height of the pyramid, but on precision, control, and artistic arrangement of graceful balance positions.

Preparation for pyramid building will include practice of many of the individual balance exercises included in the list of tumbling exercises. Shoulders sit, shoulder stand, chest balance, back swan, etc., may also be used, but only where the relative weights of those supporting and supported are such that undue strain will be avoided. Caution must be exercised in the selection of pupils for these positions.

Tumbling and pyramid building are activities which may be used for display purposes, but this point should not be forgotten: Smooth, finished performance of simple exercises is preferable to an attempt at difficult ones.

Safety Note

Safety in apparatus work should be a matter of skilled performance rather than reliance on safety devices. In attempting a difficult exercise for the first time, pupils will require some support. A little support properly applied in the right place at the right time is all that is needed. Pupils should be trained to carry through an action once it is started, as most troubles result from hesitation before the movement is completed.

TRACK AND FIELD ATHLETICS

Boys:

The following events are suggested as suitable for boys:

50 yard dash; 100 yard dash; running broad jump, running high jump; 220 yard relay; novelty races.

220 yard dash; softball throw; running, hop, step and jump; vault; shot put (8 lb.).

880 yard run; discus throw; javelin throw.

A competitor should not be required to pass tests in all events in his class, but should be able to meet the standards in about four.

Girls:

The following events are suggested as suitable for girls:

50 yard dash; broad jump; softball throw; high jump; novelty races; shuttle relay (12 per team); 220 yard relay; 50 yard, 75 yard, 220 yard relay; running high jump; running broad jump; softball throw; free throw contest (basketball).

60 yard dash; discus throw; javelin throw.

N.B.—It is recommended that the individual girl be restricted in the number of events which she may enter in one day.

The value of track and field athletics for girls has been seriously questioned by many experts in the field of physical education. There is no doubt that from the standpoint of body mechanics track and field events were designed for the masculine rather than the feminine build. This is perhaps the reason why girls as a group are less interested than boys in this phase of the physical-education programme, and are less willing to train seriously for their events. Without adequate training, competition in events is likely to do more harm than good. Neither, of course, should boys take part in a meet without sufficient preparation. *The practice of doing no training, and then entering all possible events on the day of the meet, cannot be too strongly condemned.*

INTERESTS AND ATTITUDES

Interests are very closely related to skills. One dislikes the game he plays poorly and enjoys the game he plays well. One of the best ways to develop interests, therefore, is to develop proficiency. An interest, like a muscle, will soon atrophy if it is not exercised. Hence we should try particularly to develop interests which have some chance of survival by reason of the social sanction they receive outside of school. One of the functions of the school is to stimulate and promote by every means within its power all forms of healthful activity on the part of outside groups.

Attitudes have often been spoken of as if they are mysteriously acquired as concomitants of the learning process, and nothing much could be done about them. How often have we heard it said that "sportsmanship is caught rather than taught"? The truth is that sportsmanship and all other attitudes *are and must be taught,* and the teacher has the responsibility of seeing that *desirable* attitudes are taught and developed.

You cannot teach good sportsmanship merely by talking about it: in fact, the more you talk about it the less you are likely to

accomplish. Good sportsmanship is acquired in an activity situation. To shift the centre of attention from the activity to "how you behave while you perform the activity" is to defeat your own purposes. It does not follow that the instructor should be insensitive to the attitudes the student is shaping, or that the student fails to recognize, acquire, and appreciate such attitudes. But some learnings must, through their very nature, be acquired as concomitants of other learnings rather than as foci of attention. A word of praise or censure, a look, a casual remark, an example—these are the methods by which attitudes may best be shaped.

A first step in the teaching of attitudes must be to cease thinking in terms of vague generalities, and to think in terms of *specific behaviour*. Sportsmanship, for example, should not be thought of as an intangible something, but as an acceptable way of behaving in a specific situation. Perhaps the development of a sportsman's code would be of help. The following are a few suggestions as to items which might be included in such a code:

1. A good sportsman respects the feelings of his opponent, and would do nothing to injure or to humiliate him.
2. A good sportsman plays to win; he plays as hard as he can, but he plays fair.
3. A good sportsman is a good winner; he never boasts or "rubs it in."
4. A good sportsman is a good loser; he never says or does anything, while losing or after, that would detract from the natural pleasure of his opponent in winning.
5. A good sportsman keeps on trying; he plays his best no matter how far behind he may be.
6. A good sportsman is a good team player; he cares more for his team than for personal glory.
7. A good sportsman accepts the decision of a referee without question.

With respect to other parts of the programme, we have as one of the major objectives the development of the individual in socially desirable traits. We should, then, teach specific social graces. Youth wishes to conform, to play the game as a member of the social group, but too often has never been taught the rules. Should we not, then, teach such social amenities as "How to ask a girl for a dance," "How to introduce a friend to others at a dance," "How to thank your partner at the end of a dance," as well as teaching the mechanics of dancing.

One last point should be mentioned in connection with the problem of teaching attitudes. The development of such attitudes as sportsmanship should not be considered the special function of Physical Education. Attitudes enter into any human relation, as much out of school as in school, as much in the Science as in the Physical Education period. *Giving direction and help to the students in the development of desirable attitudes is the responsibility of every teacher all the time.*

References for the Teacher:

I—General:

Principles of Physical Education: Williams.

A Modern Philosophy of Physical Education: Wayman.
Philosophical Bases of Physical Education: McCloy.
Sports Education: Staley.

II.—Rhythmic Exercises:

1933 Syllabus: London Board of Education.
Recreation and Physical Fitness for Girls and Women: London Board of Education.
Fundamental Gymnastics: Nels Bukh.

III.—Group and Team Games and Individual Games and Sports:

Physical Education Play Activities: Powdermaker.
Table Games: Marran.
Barnes' Sports Library: Barnes (many varied titles found in this series.)
Physical Fitness: Kirkpatrick and Griffiths.
Social Games for Recreation: Mason and Mitchell.
Physical Education for Elementary Schools: Neilson and Van Hagen.
Games (1937): Bancroft.
Canadian Book of Games: Bandreth.
Games, Contests and Relays: Staley.
1933 Syllabus: London Board of Education.
Recreation and Physical Fitness for Girls and Women: London Board of Education.
Junior Athletics: Bartlett.

IV.—Dancing:

Physical Education for Elementary Schools: Neilson and Van Hagen.
Creative Activities in Physical Education: Harrigan.
Rhythms and Dances for Elementary Schools: LaSalle.
Folk Dancing and Singing Games: Burchenall.
Folk Dancing from Old Home Lands: Burchenall.
Natural Rhythms and Dances: Colby.

V.—Tumbling and Pyramid Building:

Recreation and Physical Fitness for Girls and Women: London Board of Education.
Tumbling, Pyramid Building and Stunts for Girls and Women: Cotteral and Cotteral.
Junior Athletics: Bartlett.
Tumbling Illustrated: McClow.
Pyramids Illustrated: Machery and Richards.
Physical Education for Elementary Schools: Neilson and Van Hagen.

VI.—Track and Field Sports:

Recreation and Physical Fitness for Girls and Women: London Board of Education.
Handbook in Physical Education: Barker.
Track and Field for Women: Frymir.
Spalding Athletic Library: Spalding.

MATHEMATICS

INTRODUCTION—GRADES VII, VIII AND IX

One may assume that the majority of children in Alberta will continue their schooling at least to the end of the Intermediate School. It follows that the Mathematics of Grades VII, VIII and IX must be of interest to all pupils. The content must be suited to the general-course pupil as well as the future matriculant. It must, to be understood, be related to the child's out-of-school environment. It should, wherever possible, include activities and references to concrete situations.

Many pupils will not continue their schooling beyond Grade IX. It is not desirable, therefore, to spend their time on perfecting techniques of computation which they will seldom if ever use. It is preferable to introduce them to as wide a range of interpretative Mathematics as possible. There are concepts in Algebra and in Geometry which are easily understood, and which will make meaningful much of the child's out-of-school experience. The Mathematics of the intermediate school introduces this easier work in Geometry and in Algebra and fuses it with the Arithmetic. The principles of Arithmetic become the principles of Algebra expressed in general numbers, and the measurement of Arithmetic becomes the specialized measurement of Geometry.

Since the aim of the course is to interpret the environment rather than to give skill in computation, emphasis is placed on easy mathematical relationships expressed in the form of tables, graphs, formulas and equations. Easy applications of seemingly difficult types of thinking are introduced, particularly in Grades VII and VIII. The concrete setting allows the pupil to understand the relationship; whereas, a more verbal and logically arranged presentation would not be understood. The stress is placed throughout upon wide training rather than upon the mastery of difficult techniques.

Although the fundamental operations with integers and fractions have been stressed in previous grades, there is constant drill and review upon them in Grades VII and VIII. Teachers should note the presence in the texts of many types of test material. They should study and master their use. There are general survey tests for each process; there are diagnostic tests to locate specific weaknesses; and there are periodic practice tests. *All children need not take all tests.* The text-writers assume that individual differences will be recognized.

In Grades VII and VIII, major space and attention are given to Arithmetic, although intuitive Geometry and easy algebraic notions are introduced. In Grade IX, the emphasis is placed upon Geometry and Algebra. In the Geometry, the role of logic has been minimized, and major emphasis has been placed upon the perception and interpretation of spatial relationships. *Teachers will note that model proofs have been replaced by outline proofs to be completed by the students. It is hoped that the more informal treatment of propositions will decrease the tendency of pupils to memorize stated proofs.*

Many of the earlier fundamental propositions are accepted as assumptions. The rigor of the treatment is progressive. A dynamic rather than a static view of geometric figures is given.

Throughout the Algebra and Geometry *the concept of functionality* is repeatedly introduced. The early emphasis on this notion should make meaningful the Algebra of Grades X and XI, in which equations will be viewed as statements of relationships among variables, rather than as statements of facts respecting constants.

TEACHERS' REFERENCES:

The Teaching of Elementary Mathematics—Godfrey and Siddons (Macmillan Co.).

Diagnostic and Remedial Teaching in Arithmetic—L. J. Brueckner (John C. Winston & Co.).

The Teaching of Elementary Algebra—Durell (Clarke, Irwin & Co.).

The Teaching of Junior High School Mathematics—David Eugene Smith and W. D. Reeve (Ginn & Co.).

The Technique of Teaching Secondary School Mathematics—E. R. Breslich (University of Chicago Press).

LaZerte Diagnostic Problem-Solving Test, Grade VII—M. E. LaZerte (Clark, Irwin & Co.).

GRADE VII

General Outline.

A.—*Tools and Techniques.*

1. Review and extension of Grade VI work.
2. Notation and fundamental operations.
3. Decimals and fractions.
4. Percent fraction.
5. Geometric measurement.
6. Graphs.
7. Formulae.

B.—*Problem-Solving.*

1. Arithmetic of the home: budgeting and household accounts; bills and receipts; banking; interest—percent fraction involving time factor; interest formula; insurance. (Correlation with *Farm and Home Accounting,* where that option is offered.)
2. Arithmetic of business: buying and selling; profit and loss; insurance.
3. Constructional Geometry: simple geometry and measurement with ruler and compasses; reading and measuring angles; drawing to scale; construction of right angle, rectangle and square; parrallel lines and parallelograms; bisection of line and angle; construction of triangles; finding areas and volumes; area and volume formulae.
4. Generalized Arithmetic: general numbers, working with formulae; solving equations.

C.—*Vocabulary and Spelling.*

N.B.—Parts A, B and C are taught concurrently, as set forth in the textbook.

TEXTBOOK: *Mathematics for Everday Use, Book I.*

GRADE VIII

General Outline.

A.—*Tools and Techniques.*

1. Review of fundamentals in Grade VII work.
2. Decimals and fractions.
3. Graphs.
4. Formulas.
5. Proportion.
6. Powers and Roots.
7. Metric measurement.

B.—*Problem-Solving.*

1. Arithmetic of the environment (home, community and industry): taxation; employment; buying fuel; paying for a house; paying taxes; cost of an automobile; instalment buying; cattle accounts; keeping a cash account; and other such practical problems.
   (Correlation with *Farm and Home Accounting,* where that option is offered.)
2. Arithmetic of business (applications of percentage): invoices and trade discounts; savings banks and interest (formula and graph for interest); promissory notes; insurance; duties and customs; commissions.
3. Constructional Geometry: drawing to scale; measuring areas; similar figures (ratio and proportion); hexagon, and polygons.
4. Generalized Arithmetic: Formulas (interest formula); equations; using Algebra and Geometry; graphs (interest graph).

C.—*Vocabulary and Spelling.*

N.B.—Parts A, B and C are taught concurrently, as set forth in the textbook.

TEXTBOOK: *Mathematics for Everday Use,* Book II.

GRADE IX

In this Course, the mathematical ideas and techniques of Arithmetic, Algebra and Geometry are developed without separate treatment of these subjects. This integration is more easily effected in the mathematical courses of Grades VII and VIII, while in Grade IX some separation is unavoidable.

In the algebraic portion of the course it is intended that the student's knowledge of numbers and space relations be used as the basis for formulae and operations, and that every effort be made to recognize that *it is mathematics that is being studied, and not a narrow and abstract set of algebraic rules.*

In the geometric portion of the course the main principle should be kept in mind. The pupil's experiences and earlier knowledge of space relations and measurements should form the basis. This principle has been recognized in many courses of study elsewhere. Three stages in the learning of Geometry have been recognized and utilized in the planning of courses:

First Stage

The meanings, geometric terms and many of the simple relations between parts of plane figure learned or unlearned through observation and intuition.

Gormal (theoretic) proofs would be omitted in this stage.

Second Stages

Relations which have been observed and stated are used in proving simple deductions and in verifying well-known methods of construction.

Third Stage:

Formal proofs of most of the important geometrical statements and constructions (propositions) are arranged to form, as nearly as possible, a strictly logical system.

The first and second of the above stages are to receive emphasis. Studies of the properties of lines, angles, triangles, parallels and quadrilaterals are to be made inductively. Constructions are to be practised and relationships stated as a result of observation, measurement and discovery. Beginning with the section on congruence, the student is to be introduced to the use of argument or proof in deducting facts and methods as described in the second stage above.

The third stage involving appreciation of the Euclidean attempt to construct a logical system is not to be attempted in this grade. Thus proofs of congruence by "superposition" and the questionable logic of the "parallel postulate" are replaced by the frank assumption of the important and fundamental truths.

After each principle has been inferred and stated clearly, short and easy applications should be made. In many instances these may be found in the practical every-day world; in others easy numerical exercises will serve.

In the same way arithmetical and geometrical examples may be used as illustrations in Algebra.

The outlines and content of the course are as set forth in the textbook.

Textbook: *"Mathematics for To-day"*—La Zerte and Betts.

This combined course should receive one period per day throughout the year. The teachers are advised to teach the Algebra portion of the course two or three periods per week, and the Geometry on the remaining days.

N.B.—Grade IX students are not required to prove Theorems 1 to 16 (inclusive) on pages 249 to 284 of *Mathematics For Today,* by LaZerte and Betz. These theorems may be classed as *assumptions,* along with the assumptions listed on page 264 of this textbook.

GENERAL SCIENCE

INTRODUCTION

The world of today cannot be understood by one who is ignorant of science and its contribution to man's comforts and needs. The influence of science on man forms an integral part of the whole pattern of human activity. The applications of science have deter-

mined the progress made by man in transportation, communication, and in the mass production of food, clothing and shelter materials. The scientific method of thinking and acting, which is necessary to our democratic way of life, is now used in an attempt to solve social and economic problems.

Science must contribute to the orientation of the child in the complex pattern of current life. Science is a field of discovery and exploration rather than a subject-to-be-learned. Teachers must discover and help pupils to find relationships which link subjects together. Studies in science are only significant as they are related to other subjects, and to life here and now. It will soon become evident that in the study of social living, Science, Social Studies, and Health interfuse in many of their aspects. Just as the fundamental principle of integration set out in the elementary school programme is organization around the basic needs of complete social living, so too in the intermediate school, Science, Social Studies and Health should be interpreted in relation to man's basic needs.

Intermediate school instruction in science must be built on the students' experiences of the first six grades. At the same time, it should provide orientation in the special sciences of the high school, and serve as a foundation for further work in those sciences.

The process of thinking from facts to the solution of a problem is the *scientifc method.* Techniques are but superficial aspects of education. Nevertheless, it is desirable that certain procedures become habitual to the students. The following steps of an experiment, from *Useful Science,* are reproduced with the permission of the publishers, The John C. Winston Co.:

1. **Problem** or Question:
   The question that we are asking nature. What we wish to find out.
2. **Materials**
   The things needed to make the experiment.
3. **Method** or Manipulation:
   What we shall have to do with the materials to find the answer to the question.
4. **Observation:**
   What happened as a result of what was done.
5. **Diagram** or Sketch:
   A neat, simple drawing showing the method used to solve the problem.
6. **Conclusion:**
   The answer to the question. What our method and our observations have shown to be true.
7. **Practical Application:**
   Most of our experiments will have a direct application to everyday life. These applications in many cases we can see for ourselves; in other cases, we may need to have them explained.

Dr. Thomas Briggs states that the method of approach in General Science may well be through the avenue of questioning, or "naive questions":

1. **"What is it?"**
   Satisfies curiosity and leads to more significant questions.

2. **What is it for?"**
   General Science should not only answer this question, but extend it beyond what the student without direction could possibly perceive.

3. **"How does it work?"**
   Satisfies and extends curiosity so that desire and need are felt for something more.

4. **"Can I work it?"**
   Psychology has taught us to recognize the satisfaction that comes from activity and from feeling oneself a cause.

5. **"What causes it to work?"**
   Principles should grow out of acquaintance with phenomena. Numerous applications should stamp them into memory and insure wide usefulness.

6. **"What further application**
   has this principle than is now known?" This leads to invention. Such a question is only asked by advanced thinkers.

While learning is unitary, for purposes of clarifying thought we may analyse it into the kinds of changes in students which may be stimulated through science teaching; such as the following:

1. Forming and understanding concepts; as,—

   "Most substances change state by absorbing or releasing energy."

   (a) Concepts should be achieved through a rich experience with the natural phenomena which may contribute to them.

   (b) Experiences should be so motivated that ideas resulting therefrom are continually associated into broader and more meaningful relationships.

2. Development of careful and critical methods of thinking. There are at least six habits which characterize such thinking. They are the following:

   (a) Habit of accuracy in all operations, including calculation, observation, and report.

   (b) Habit of intellectual honesty. This is the habit of sticking to the facts and admitting error when proved.

   (c) Habit of open-mindedness. This means a willingness to consider new facts.

   (d) Habit of criticism, including self-criticism.

   (e) Habit of looking for true cause-and-effect relationships. Here the prevalent superstitions are subject to searching analysis.

   (f) Habit of suspended judgment. This is looking for all pertinent data before making a decision.

3. Changes in overt behaviour.

   (a) Science education should replace action based on fear of natural processes with action based on understanding.

(b) Care of trees, forests and grasslands should be promoted by understanding of the *balance of nature* and the consequences of disturbing that balance.

These are but two of the many desirable changes in behaviour that science education can promote.

4. Development of specific attitudes, interests and appreciations. Those which are most valuable will grow only when the teacher plans consciously for their development.

5. Development of an adequate and intelligent philosophy of life. In past times the idea of a flat earth was satisfactory. Later the idea of a spherical earth was needed. Today we must have an idea of a vast universe in order to have an adequate frame of reference for our thinking.

The teacher's function is to plan and direct rich experience for his students. Through these he may influence the forming of concepts, the thinking that is done, the changes in behavior, the attitudes and appreciation developed, and the modifications of the student's philosophy of life.

This course should not develop into a note-giving course. The revising committee would discourage the use of manuals, helps, etc., in the hands of the students. Pupil growth through teacher growth is an ideal at which we must aim. Pupils should be encouraged to take inventory of the work accomplished, and set down in sentence form the outstanding fundamental facts deduced from observation, experimentation, and reading. Well planned laboratory work, properly organized field trips, the use of library facilities, and open-forum discussions are of far greater importance in the presentation of General Science than are lectures and demonstrations by the teacher.

Studies Should Arise Out of Local or Nearby Situations.

Instead of going so far afield for applications, teachers should emphasize at all times conditions in Alberta, and, if possible, local conditions. The following work plan is submitted to illustrate how local condition may form the basis for a detailed study. Substitute your own district for Clover Bar in this illustration.

***How the Local District Has Contributed to Our Needs**

Problem 1.

To discover, as definitely as possible, how the *settlement of the Clover Bar district* has changed the original plant covering of the soil and wild animal life.

EXERCISE 1.

A talk by Mr. R. Philip Ottewell. Invite Mr. Ottewell, the first man to farm in this district, to come and talk to the class about those early days.

EXERCISE 2.

Prepare a map of the district, on the scale of one-half inch to the mile, and on it mark the areas of unbroken grass and timber lands.

EXERCISE 3.

Estimate carefully the total and relative amounts of such unbroken lands.

EXERCISE 4.

Make a list of the animals and birds that were once common here but are now seldom or never seen.

Problem II.

Have these destructive activities, necessary for the most part, always been so controlled as to result in lasting good to the community?

EXERCISE 1.

Study your own neighbourhood for instances of woods that have been cut down, lands that have been drained, or animals that have been destroyed, which you think should have been left undisturbed. Be prepared to give your reasons for so thinking.

EXERCISE 2.

Discuss what our attitude should be, and what our duties are in regard to the conservation of wild flowers, forests, streams, and wild life of this district and of Alberta generally.

Problem III.

To find out definitely the kinds of *plants and animals* that are now being produced on the farms of this district.

EXERCISE 1.

Each pupil is to report for his father's farm, and for any neighbouring farm from which no child comes to school.

EXERCISE 2.

Using a copy of the same map of the district that was prepared before, indicate thereon the kinds of plants and animals that are raised on each farm. (The varieties of plants and breeds of animals are to be shown.)

EXERCISE 3.

Analyse the results of this survey to discover the most popular varieties and breeds, and account for their popularity.

Problem IV.

To find out the ways in which some of our *cultivated plants have been improved by man.*

EXERCISE 1.

Study the history of wheat with special attention to Marquis wheat.

EXERCISE 2.

The story of the search for a hardy variety of alfalfa that will thrive in our climate.

EXERCISE 3. A "Potato Day."

Each pupil will bring to school the five best tubers of one variety that he can find at home. These are to be neatly and correctly named. They will be compared and judged.

EXERCISE 4.

Compare field mustard (or other available mustard plant) with the flower stalks of turnips, rape, kohl-rabi, cabbage, and cauliflower for characteristics in common.

Problem V.

How has the *improvement of our domestic animals* been brought about?

EXERCISE 1.

A visit to the farm of Mr. Will S———, who is developing a fine herd of Holsteins. Mr. S——— will tell you something about the origin and history of the breed and how he is trying to improve his herd.

EXERCISE 2.

Trace the improvement of swine from the original wild hog to the highly developed Yorkshire of the present day.

EXERCISE 3. A "Hen Day."

Each pupil brings to school his best hen. The show is staged in the barn, which is cleaned for the purpose. Compare these birds with pictures of the jungle fowl of India, from which they all originated. (See "Fowls of the World"—The National Geographic Magazine.) Arrange the hens according to type, to show how special characteristics have been produced by breeding and selection.

HOW TO USE THIS PROGRAMME IN GENERAL SCIENCE

1.—A Differentiated Programme.

In order to help teachers solve the problem of individual differences in a class of students, this programme has been *differentiated.* A plan of enrichment is developed, by means of which the *minimum essentials* are given for all students, and *enrichment exercises* for the brighter ones; or, with reference to different types of school, minimum essentials for the rural or one-room school in which the teacher is overburdened, and enrichment material for urban schools. *All enrichment material for Grades VII and VIII is marked with the single or the double asterisk.* The single asterisk, indicates material that should be chosen first; and the double asterisk, material that may be taken with a student or class having superior ability or special interest in the subject.

Important Notice to Teachers.

More material is listed for Grades VII and VIII than can be taught by any teacher in the three periods a week assigned to General Science.

Teachers should make provision for covering the minimum essentials, and thereafter select carefully some of the enrichment material, as time permits or conditions warrant.

2.—A Two-year Cycle for Rural Schools.

In order that rural teachers may be able to combine grades, a cycle has been arranged for the first two years of this programme.

Section A will be taught both to Grade VII and Grade VIII during the year 1945-46, *and each alternate year thereafter.*

Section B will be taught both to Grade VII and Grade VIII during the year 1944-45, *and each alternate year thereafter.*

In urban schools, or in schools where Grade VII and Grade VIII are taught separately, Section A will be taken in Grade VII, and Section B in Grade VIII, every year.

The Grade IX course is to be taken by all Grade IX students every year.

3.—General Features of the Programme.

(i) Each of the students has been organized in *units* based on a significant *central theme.* Each unit is composed of definite and distinct *elements,* which have the same relation to the unit that the unit bears to the whole section. The themes of Section A are *Water, Air,* and *Animal Life;* and of Section B are the *Earth's Crust, Plant Life,* and the *Universe.* It is not intended that these themes should be kept as separate compartments; but rather that they should serve as centres around which a certain amount of factual knowledge, the raw material of thinking, may be organized to show the value and importance of fact relationships in scientific thinking.

(ii) The material is *not* arranged in the order in which it should be presented. It will be necessary for the teacher to rearrange this material to correspond with the seasons of the year. For example, the solid state of water should be studied in the winter season.

(iii) Certain parts of the programme are meant to be studied as a simple survey of the field. These are indicated thus: *Simple Survey.* The remaining parts are to receive a more intensive treatment.

(iv) Certain elements appear twice. For example, the formation of soil by water appears under *Water,* and again under the *Earth's Crust.* Such repetition is marked thus: *See earth's Crust, B (d(.* Teachers are asked to plan their work in such a way as to avoid this repetition in teaching.

(v) The *preamble* at the beginning of each theme is *not for detailed study,* but to remind teacher and students of certain salient features of the environment.

(vi) Throughout the programme, *notes meant exclusively for the teacher are placed in italics.* Such notes will aid in interpretation, and should be studied carefully.

TEXTBOOKS AND REFERENCE BOOKS IN SCIENCE FOR USE IN GRADES VII, VIII and IX

No single textbook has been authorized for the use of pupils in Grades VII or VIII or in Grade IX. The Department of Education has, however, recommended a list of three books for use as textbooks by the pupils of Grade VII and VIII, and a further list of four books for use as textbooks by the pupils of Grade IX. These lists are set forth below.

N.B.—No pupil need or should own all of the textbooks, but every pupil should have at least one. Teachers should try to arrange for an equal distribution of the three textbooks in every class.

No single book will meet all the requirements of Grade VII, Grade VIII or Grade IX. It is intended that pupils shall use the recommended textbooks as guides in the interpretation of this outline for the course in Science and in the solving of their Science problems. Teachers should realize the fact that the greatest value of the course comes to the pupils from enlarged reading and extended research through attempts to solve problems. The single textbook is necessarily limited in scope. The use of a single book is therefore not conducive to the technique of group discussion and of pupil report for submission to the class. Browsing for data, and skilful selecting and rejecting of information on the ground of pertinence to the problem in hand are techniques of fundamental importance, requiring the multiple-textbook procedure. **For this reason, every classroom library should contain all the books recommended for use as textbooks and some at least of those listed as reference books for the use of pupils.**

Grade VII.

The following books are recommended for use as textbooks:

1. *Understanding Our Environment* (Interpreting Science Series, Book I): Franklin B. Carroll.
2. *Our Environment—Its Relation to Us, Book I*: Carpenter and Wood.
3. *Experiences in General Science*: Bowers and Sheane.

The following books are recommended as reference books for the use of pupils:

Science Problems, Book 1: Beauchamp, Mayfield and West
The World Around Us (Survey of Science Series, Book I): Powers, Neuner and Bruner.
My Own Science Problems, Book 1: Hunter and Whitman.
Useful Science, Book 1: Weed and Rexford.
Elementary General Science: Limpus and Shore.

Grade VIII.

The following books are recommended for use as textbooks:

1. *Understanding Our World* (Interpreting Science Series, Book II): Franklin B. Carroll.
2. *Our Environment—How We Adopt Ourselves to It, Book II*: Carpenter and Wood.
3. *Experiences in General Science*: Bowers and Sheane.

The following books are recommended as reference books for the use of pupils:

Science Problems, Book 2: Beauchamp, Mayfield and West:
This Changing World (Survey of Science Series, Book II): Powers, Neuner and Bruner.
Useful Science, Book II: Weed and Rexford.
Science in Our Social Life, Book II: Hunter and Whitman.
Science Indoors and Out, Books I and II: Hensley and Patterson.

Elementary General Science: Limpus and Shore.
Mastering Our Environment: H. O. English.
Everyday Science: J. A. Partridge.
The Animals' World: Doris L. MacKinnon.
Seeing Stars—Harter Publishing Company.
Agriculture for Public Schools: Hutchinson.
Science Experiments with Home Environment: Lynde.
Science Experiments with Home Equipment: Lynde.

Grade IX.

The following books are recommended for use as textbooks:

1. *Understanding Our Universe* (Interpreting Science Series, Book III): Franklin B. Carroll.
2. *Our Environment—How We Use and Control It, Book III*: Carpenter and Wood.
3. *Everyday Problems in Science*: Beauchamp, Mayfield, West.

The following books are recommended as reference books for the use of pupils:

Science (The Story of Progress and Discovery): Davis and Sharpe.
Science Problems, Book 3: Beauchamp, Mayfield and West.
The March of Science, Book III: Hunter and Whitman.
Man's Control of His Environment, Book III: Powers, Neuner and Bruner.
Science in Our World of Progress, Book III: Hunter and Whitman.
Useful Science for High School: Weed, Rexford and Carroll.
Science Indoors and Out, Book III: Hensley and Patterson.
General Science for Today: Watkins and Bedell.
Book of General Science: Hilton.
Conquering the World of Science: Nida.
The Science of Everyday Life: Vanbuskirk and Smith.
Living in a World of Science, Books I and II: Meister.
Science: Hunt, Clark and Davidson.
Science Experiments with Home Equipment: Lynde.
Science Experiments with Inexpensive Equipment: Lynde.

EQUIPMENT FOR GENERAL SCIENCE IN THE INTERMEDIATE SCHOOL

In the following lists, the items of equipment which are absolutely necessary are given in list A. Those of lists B, C, D, E should be obtained in order, as funds permit.

Quantities shown are for very small groups of students, such as are found in the smallest schools. To permit individual experimental work, large quantities will have to be supplied.

It must be understood that the prices shown are only approximate, and are subject to a considerable fluctuation.

Note: By skillful improvising of equipment a considerable saving can be brought about. Suggestions appear below.

A.—Minimum Equipment:

Quantity.	Description.	Price.
1	Evaporating dish, 60 mm.	$ .20
1	Alcohol lamp, 6 oz.: Improvise from ink-bottle	.70
1	Bakelite pulley, 5 cm.: Improvise from spools	.50
1	Glass model lift-pump, 37 cm.	1.90
3 ft	Rubber tubing, medium wall, ¼ inch inside	.75
1 lb.	Glass tubing, 6 mm.	.90
2	Thistle funnels, 10 inch	.36
2	Beakers, 50 cc.	.40
12	Test tubes, ¾″X6″ pyrex	.35
1	Rubber stopper, solid, to fit test tubes	.07
12	Cork stopper, solid, to fit test tubes	.10
1	Rubber stopper, 1-hole, to fit test tubes	.07
1	Rubber stopper, 2-hole, to fit test tubes	.07
1	Retort stand, with 2 rings: Improvised easily	1.25
1	Steel magnet, permanent, 5-inch	.40
1	5-inch square of wire gauze: Use screening—close mesh, 12 or 14	.12
1	Cylindrical graduate flask, 100 cc. Use medicine bottle	1.20
1	Test-tube clamp, 6 in	.12
2	Florence flasks, flat bottom, 500 cc.	.60
1	Rubber stopper, to fit florence flask, solid	.07
1	Rubber stopper, to fit florence flask, 2-hole	.07
2	Cork stoppers, to fit florence flask, solid	.03
10 oz.	Potassium chlorate	.40
2 oz.	Manganese dioxide	.20
1 lb.	Marble chips	.30
12 oz.	Sulphuric acid—Label and mark "poison"	.75
1	Electric motor: Use car heater motor, or car starter	....
1	Three-cornered file, 6″	....
12 oz.	Muriatic (hydrochloric) acid—Label and mark "dangerous"	.50

B.—

1	Combined pressure and vacuum pump, hand size	6.00
1 ft.	Heavy rubber tubing, ¼ inch inside	.40
1	Student's balance, simple beam type: Can be improvised	10.00
1	Set of weights	3.00
1	Additional reference book.	

C.—

1	Electric switch: Easily improvised	.40
1	Toy steam engine	1.50
1	Metre stick	.40
1	Torricellian tube, with 3 lbs. mercury	8.50
1	Additional reference book.	

D.—

Electroplating apparatus, complete: Easily improvised	3.60
Set of fuses	.50
Dynamo: Auto generator	....
Pneumatic trough: Easily improvised from gallon can	.80

Set of capillary tubes	$ .95
Iron filings: From any shop on farm or in Town	.20
Convection current apparatus: Easily improvised	1.20
Filter paper	.20
Thermometer, Fahrenheit-Centigrade	3.50
Additional reference book.	

E.—

Telegraph key and sounder: Easily improvised	5.00
Aquarium	4.00
Inclined plane	1.50

F.—

Hygrometer	6.00
Horse-shoe electro-magnet: Easily improvised from an old magneto	1.50

G.—

Compound microscope	$30 to $100

Supplies obtainable locally:

½ quart methyl hydrate (wood alcohol)	$ .60
1 dry-cell battery	.40
3 toy balloons	.10
3 six-inch candles	.06
1 small cube clothes bluing	.05
3 half-pint clear heavy-glass tumblers	.15
3 oz. formaldehyde	.15

Equipment which may be borrowed or improvised:

Block and tackle; screw-jack; mouth organ; gasoline lamp; coal oil mantle lamp; flashlight; large clear-glass bowl; farm milking pail; retort stand; alcohol lamp; test-tube clamps.

Obtainable without cost:

Worn-out electric light bulb, old and new fuse, iron filings, seeds of oats, wheat, etc., fine and coarse sand, wooden spools, beef bladder, crochet sleeve for thermometer in making hygrometer, dried prunes for osmosis.

OUTLINE OF CONTENT AND ACTIVITIES

SECTION A

THEME 1: THE EARTH'S HYDROSPHERE: WATER—THE LIQUID PORTION OF OUR PLANET

Preamble: "Water, water, everywhere."

Water is a substance intimately bound up with our existence and with the existence of all plants and animals.

a. It covers three-quarters of the surface of the globe (hydrosphere).

b. It makes up four-fifths of the weight of our soft tissues; (cell water and food carrier).

c. Without water there could be no plants; hence no vegetables or fruits; no animals and no food for man. (Interdependence of life forms.)

d. Without water there would be no rainy days, no snow storms, no coasting or skating, no bathing, swimming or sailing, and no water to drink.

A.—Nature and Behaviour of water (Simple Survey).

I. *Forms of water*: indoor experiments; out-door observations.

1. Liquid—fog, mist, clouds, dew, whitish portion of vapour from boiling water and of breath in cold weather.
2. Solid—ice, snow, hoar frost.
3. Gas—colourless gas in the air and in the breath before it is cooled; the invisible part of vapour.

II. *The Water Cycle*:

a. The atmosphere receives water vapour and gives it back in a variety of ways.

1. How the atmosphere receives water.
   (a) Evaporation from all surfaces of bodies of water; from wet rocks and soil; from snow and ice.
   (b) Moisture given off from the burning of fuels, by the breathing of animals; from trees and other plants.
2. How the atmosphere returns water.
   (a) Condensation and formation of rain, dew drops, fog.
   (b) If temperature is very low, hoar frost, snow, and hail are formed.

b. This return of the water makes the earth moist; fills rivers and ponds; supplies animals and plants with the

necessary water. Thus there is on the earth a never-ending cycle of water from solid or liquid to gas and back again from gas to liquid or solid.

c. Effects of solidification of water on plant and animal life. Temperature falls below freezing point of water; significance to plants and animals. This liquid makes up a large percentage of the composition of all living things and is the environment of many plant and animal forms. (See Units G and H.)

d. Effects of cold water on life forms. Discussion.

1. Ground is frozen; water is available in very limited quantities to plant roots; (resting stage).
2. Dwellers in the soil, like earthworms and certain larvae, are unable to move about and obtain their food; (resting stage).
3. Grass and other low-growing vegetation is inaccessible to wild animals for food.
4. Tree leaves, which during the summer sustained great insect populations, have withered and fallen; (plant factory shuts down).
5. Birds in whose diets insects were an important item, find their food supply sharply curtailed by the first frosts; migrants; residents.
6. Snow acts as a blanket:
   (a) Prevents frost from penetrating too deeply into soil.
   (b) Prevents alternate thawing and freezing of ground in southern Alberta.
   (c) Conserves moisture of winter and makes it available in the spring for plant growth.
   (d) Protection of seeds for next year's growth.
7. Water overflows on soil, freezes, kills many perennials.

e. Maximum density of water, 4 degrees Centigrade. Protection afforded aquatic plant and animal life.

f. Demonstrations: Effects of heating water; relation of volume to temperature; expansion in freezing; distillation of water.

B.—Uses of Water in the Home (Simple Survey).

a. For drinking.

b. In cooking foods.

1. Effect of boiling water on digestibility of starchy foods.
2. Softening the cellulose of vegetables by boiling water.
3. Removal of soluble mineral salts.

c. In preserving food.

1. By refrigeration.
2. Cold-pack canning.
3. In drying and "curing" with salts, water is withdrawn.

d. In cleaning.

3. Water as a solvent for soap.

*2. Hard and soft waters; washing soda and borax as water softeners; effect of boiling on temporary hardness.

3. Rinsing.

e. Removal of wastes (water for flushing).

Other ways of disposing of wastes: earth, air, fire, and fungi.

The wastes of a household are of two kinds:

(i) Garbage—solids.

(ii) Sewage—liquids.

Septic tank—structure of tank and bacterial action.

* f. As a heating medium.

1. Hot water systems—convection currents; experimental demonstrations.

2. Steam systems; diagram study.

3. Advantages and disadvantages of hot water and steam heating systems.

g. In humidification.

1. Demonstration of the presence of water vapour in air.

2. Effect of dry air on health, furniture and woodwork; prespiration.

*3. Meaning of relative humidity.

*4. Measurement of relative humidity by wet-and-dry-bulb hygrometer; alcohol bath principle.

**5. Air conditioning—meaning only.

C.—Use of Water in the Community (Simple Survey).

a. Flushing streets.

b. Watering gardens, flower beds, and field (irrigation)—how applied in each case.

c. Soil in relation to water conditions.

1. Alkali in the soil.

2. Water-logged soils.

3. Plants grow to leaf when over-watered; reduction in the number of flowers; late flowering; leaves especially subject to blights.

d. Public baths and swimming pools.

e. Provision of drinking water.

1. Sources—rain, lakes, rivers, springs, shallow wells, deep wells, artesian wells.

2. Detailed study of purification.

(a) Sedimentation—suspended matter settles. If matter is dissolved in water, settling does not purify water.

(b) Aeration—by winds, waterfalls or fountains.

(c) Filtration—use of gravel, charcoal and sand beds. Make lamp-chimney filter.

(d) Artificial—

(1) Distillation or boiling.

*(2) Chemical treatment—alum for flocculation, liquid chlorine and chloride of lime for germ killing.

3. Methods of distribution.
   (a) Source of pressure—reservoirs, stand pipes, pumps.
   (b) Aqueducts, city mains—evolution from log pipes to stave pipes to cast-iron pipes.
   (c) Plumbing.
   *(d) Demonstration of *one* type of water supply system with model apparatus.

f. Sewerage system: disposal of foul wastes of the community; proper traps essential.

g. Fire-fighting—pressure is essential.
   1. Hydrants with frost casings are placed at street corners.
   2. Sprinkler systems.
   3. Contrast stand-pipe plan and pressure system. Diagram studies.

**h. Payment for water by citizens (club plan).
   1. Water meters: flat rate, sliding scale.
   2. Reading water meters.

D.—Use of Water in Industry (Simple Survey).

a. In producing steam for power plants.

b. In dyeing and bleaching, tanning leather, washing wool.

c. Local uses—bakeries, laudries dairies, packing plants, manufacturing beverages as soft drinks.

d. Hydro-electric power.

*e. Irrigation in Alberta. (See Unit C, (b) and (c).)

*f. Mining operations—dredging, washing; salt wells.

*g. Great chemical industries.

**h. In pulp and paper manufacture.
   1. Transport fine pulp fibres.
   2. Remove impurities.
   3. Bring bleaching materials in close contact with pulp.

E.—Water and Transportation (Simple Survey).

a. Relative cheapness of carriage by water. (Canada's Inland Waterway.)

b. Rivers, lakes and seas in relation to transportation.

c. The Welland Ship Canal. Method of operation of locks.

d. Use of snow in logging operations, sleighing, snow-shoeing, skiing.

F.—Formation and Transportation of Soil by Water.

(See Section B, Earth's Crust, Unit C.)

a. Water vapour in air a factor in weathering of rocks.

b. Weathering of rocks by water containing carbon dioxide; limestone caves.

c. Erosion by water carrying sand and pebbles.

d. Rocks split by freezing of water in crevices.

e. Formation of deltas—at the mouths of the Mackenzie, Nile, and Mississippi rivers.

f. Denudation during glacial epoch; soil carried during Ice Age

g. Soil carried by glaciers of today.

G.—Plant Life and Water—Water by dissolving solids, makes them usable.

a. Experiment to determine the percentage of the weight of plants made up by water.

b. Conveyance of necessary nutrient salts by soil water to roots.

1. Ascent of water in soil—capillarity. Experiment.
2. Absorption of solution by root hairs—osmosis. Experiment.

*3. Tendency of roots to grow towards water—hydrotropism.

c. Experiment to show wilting. Water gives plants turgor (rigidity).

d. Rainfall a factor in determining the type of vegetation in world region; local wet and dry region plant societies.

e. Water as a habitat for plants.

1. Microscopic green plants as basis of existence of purely aquatic animals.

*2. Other important aquatic plants—seaweed, paddy rice.

**3. Formation of peat bogs.

H.—Animal Life and Water (Simple Survey).

a. Water in animal bodies.

1. Eighty per cent. of soft tissues of animals is water.
2. Necessity of water for digestion and absorption of food.
3. Elimination of water by kidneys, skin and lungs.

b. Water as a habitat for animals: fisheries, whaling, pearl fishing. Fur-bearers—seal, beaver, muskrat, otter; water birds and birds of the water's edge—ducks, gulls, kingfisher, bittern, grebes, mud-hens.

I.—Influence of Water on Climate.

a. The proximity of large bodies of water tends to prevent higher temperatures in summer and low temperatures in winter.

b. Land and sea breezes and the monsoons: convection experiments; sketch studies and map studies.

c. Climatic effects produced by ocean currents—Gulf Stream, Labrador Current, Japan Current, North Atlantic Drift; causes of fogs in ocean current paths.

d. Water vapour in the form of cloud, acts as a blanket in preventing loss of heat from earth's surface.

*e. Water has a very high specific heat.

f. Alberta weather types: causes of chinooks, summer hailstorms and thunderstorms; sketch studies.

J.—**Water in Relation to History** (Simple Survey). Correlate with Social Studies.

a. Early civilization in the valley of Tigrus-Euphrates and in the Nile delta. (Egypt, the gift of the Nile.)

1. Fertility of land made for relatively high standard of living, a condition conducive to cultural development.
2. Necessity for irrigation provided men with a training in the art of living together; group control and protection.
3. Mensuration and geometry born of need for measurement of land holdings continuously changing in size because of floods.

b. Caravan routes and settlements in Eastern countries determined by wells and oases.

c. Influence of waterways on exploration and settlements.

1. Search for a sea route to the East resulted in the discovery of the New World.
2. Routes important in exploration and settlement in North America—St. Lawrence, Great Lakes, Mississippi-Missouri System, "Hudson's Bay, Lake Winnipeg, Red River System," Mackenzie River.

*d. Nations with a history largely influenced by their maritime location:

Phoenicians; **Great Britain;** Holland; and Scandanavian countries.

e. Canals: history, construction; sketch maps and pictures.

1. The Suez Canal—strategic value to Britain.
2. The Panama Canal—strategic value to the United States.

**f. Fisheries.

1. The Washington Treaty of 1871.
2. The Halibut Treaty, May 9, 1930; the Sockeye Salmon Treaty, May 29, 1930. These treaties with the United States marked a step in the constitutional development of Canada.

THEME II: AIR—THE EARTH'S ATMOSPHERE.

Preamble:

Air is the invisible substance that fills the space between the earth and the distant blue of the heavens, that is found dissolved in water wherever found in nature, and in the spaces among soil and rock particles in the earth's crust.

a. It extends outward to great distances from the earth. We are concerned chiefly with the layer extending about six miles above the earth.

b. It supports the beating wings of birds and the soaring wings of planes and gliders; through it floats the lighter-than-air ship.

c. As wind, it comes snow-laden during our blizzards, dust-laden during our dust storms, and sand-laden over deserts. We find it in the Trade Winds and in the Monsoons.

d. As moving currents of air, it drives sailing vessels through water; operates the windmill that pumps our water; ventilates and heats our homes.

e. As storms, cyclones and tornadoes, it causes great damage on both land and sea.

f. Packing air into closed vessels has given power to operate such things as car brakes, submarines, and torpedoes.

g. Removal of air from closed vessels has given us such useful things as vacuum bottles, electric lamps, and radio tubes.

h. Many vital chemical processes depend upon it. Breathing animals take oxygen from the air.

i. Plants take carbon from the air. Without air there would be no plants; nor would there be animals.

j. Air carries moisture for rain and snow needed by living things.

k. Many plants are dependent on wind for pollination.

l. Wind assists in the dispersal of seeds, spores, etc.

m. Winds increase the rate of evaporation, and thus the plant life of regions of constant strong winds is effected.

A.—Composition of Air.

a. Mixture of gases—principally oxygen, nitrogen, carbon dioxide and water vapour.

b. Approximate proportions of each; do simple experiment to show proportions of oxygen and of nitrogen; also do experiments to show presence of carbon dioxide and water vapour.

B.—Occurrence.

a. Above the earth's surface.

1. Nature of the troposphere and the stratosphere; flights in airplanes and balloons. A diagram study and discussion.

b. In water.

1. Experiment to show that air is found in unboiled water.
2. Breathing of under-water animals: how fish, tadpole, eel, and clam obtain oxygen for survival.

c. In soil.

1. Experiment to show that air is found in soil.
2. Living things in soil that use air—earthworms, moles, cutworms, roots and stems (tuber of potato) of plants; life history of cutworm.

*3. Bacteria in the soil that "fix" nitrogen of the air for the use of plants.

A study of such legumes as clover, alfalfa.

C.—What Makes the Air Useful to Man?

a. Air occupies space.

1. Experiment.

2. Applications—the caisson, diving bell.

b. Air has weight; it therefore exerts pressure.

1. Experiments: To show that air has weight; to show that air exerts pressure.
2. *Information—At sea level about thirteen cubic feet of air weighs one pound. At higher altitudes this volume of air would weigh less and less. Winds are destructive because air has weight—sand blast. Air pressure at the earth's surface is due to the weight of all the air above. Normal air pressure is* 14.7 *pounds per square inch at sea level.*
3. Applications—self-filling pen, bicycle pump, lift pump, siphon, vacuum sweeper, drinking through a straw, lungs in breathing, parachute.

NOTE.—Since air has weight and occupies space, it can be classified as matter.

c. Air is heavier than some, and lighter than other gases.

*1. Experiments—fill soap bubbles or small balloons with hydrogen (teacher demonstration); pour carbon dioxide gas on candle.
2. Applications—balloons filled with hydrogen or helium, carbon tetrachloride fire extinguisher.

d. Air contains oxygen.

1. Experiment. Oxygen is active. Prepare oxygen and study its properties.
2. Oxygen makes a fire burn. Rapid oxidation produces light.
3. Oxygen allows us to oxidize food substances in the body, thus releasing energy. Study respiration in humans.
4. Slow oxidation is seen in the drying of paint and varnish.
5. In an atmosphere of pure oxygen, fire would be uncontrolled.
6. Applications.
   (a) Homes, factories, trains, steamships, automobiles, and airplanes are warmed or driven by oxidation.
   *(b) Gunpowder, nitroglycerine, TNT used in shells; nitro-cellulose used in smokeless powder.
   *(c) Oxygen administered in pulmonary diseases.

e. Air contains nitrogen.

1. Experiment to show that nitrogen is inert. (Iron filings adhering to inside of moistened test-tube and inverted over water.)
2. Nitrogen regulates the speed and combustion by diluting oxygen.
3. Nitrogen is used to fill electric light globes.
4. Fixation of the nitrogen in the soil air by means of bacteria. Nitrogen cycle, treated simply.

f. Air contains carbon dioxide.

1. Experiment using fresh limewater. (Test breath, room air, burning.)

2. Water and carbon dioxide are the two principal raw materials used by plants in manufacturing their foods. (Carbon-oxygen cycle.)
3. Carbon for building tissue in plants and animals is derived from the carbon dioxide of the atmosphere.
4. All the carbon of our coals, gasoline, coal oil, and natural gas, as well as in the huge beds of limestone, has been extracted from the carbon dioxide of the air.

g. Air contains water vapour. (See Theme I, Unit B, g, 1.) (Review.)
1. Formation of clouds, rain, dew (saturation or dew-point), fog, hoar frost.
2. Relation of humidity of air to health and comfort.

D.—Some Economic Problems (Simple Survey).

a. Rusting on metals. Iron rusts (oxidizes) in air (oxygen) and moisture.

Control. Exposed surfaces of iron are covered with material which keeps the air from them:
1. A "tin" can is iron with a thin wash of tin.
2. Steel bridges preserved by paint.
3. Iron is dipped into molten zinc (galvanized iron).
4. Modern chromium plating: cars, jewellery, etc.

b. Air contains dust particles; observation and experiment.
1. Sources of dust in air—burning soft coal, over-cultivation of soil, volcanic explosions, sweeping, dusting.
2. Control—watering wagon, garden hose, vacuum cleaner, air conditioners, furniture oil for dusting, gauze masks, suitable cultivation of land.
3. Living dust (bacteria).

c. Source of oxygen when man breathes (i) at high altitudes, (ii) in a smoke-filled room. (iii) under water (oxygen tanks.

d. Fire.
1. Relation of use of fire to advance in civilization. A time-line.
2. Uses of fire to man—warmth, preparation of food, heating liquids, generating steam, melting metals.
*3. Relation of air and temperature to combustion.
(a) Air (oxygen), heat, and a substance combustible at ordinary temperatures are necessary to start combustion.
(b) Kindling temperatures of two or more substances (sulphur, wood, coal).
4. Products of combustion—water and carbon dioxide. Test with candleflame.
5. Control of fire.
(a) Causes of fires—carelessness a basic factor; fire hazards.

(b) How to fight fires.

(1) Use and operation of fire extinguishers; study "tie-up" type.

(2) How to extinguish fires—use of water or sand, or damp blankets.

(3) How to call a fire department.

(4) What to do when one's clothing catches fire.

(5) How to set a back-fire when fighting a bush or prairie fire.

E.—Effect of Heat on the Volume of Air (Gases).

a. Temperature—how determined; Galileo's air thermometer (first type used).

b. Demonstrations to show that air expands when heated and contracts when cooled.

c. Experiment to show that hot air rises and cold air sinks—convection current.

d. Applications—winds; bursting of automobile tires on very hot days; making "angel-food" cake; yeast causing bread to rise; "puff paste" rolled and folded at freezing temperatures and then baked in a hot oven; fire balloon.

F.—Weather.

a. Distinguish temperature and heat by showing that the same quantity of sun's heat spreads over widely differing areas in Arctic and equatorial regions, resulting in different zonal temperatures. Diagram study; also experimental demonstration with hollow prism or cylinder and globe (of basketball).

b. Distinguish weather and climate.

c. Weather processes are caused by heat from the sun.

d. General configuration of the globe.

1. Tropics—immense bodies of water-evaporation.

2. Polar regions—ice, snow, and cold.

e. Due to differences of temperature there are regions of "high pressure" and "low pressure" which produce the winds that distribute the moisture.

f. Moisture is taken out of the air by cooling it.

1. Relation between altitude and temperature; relate to clouds.

2. Effect of expansion on the temperature of air; relate to cloud formation.

3. Air cooled by expansion until saturation point is reached and vapour appears as a cloud.

g. In nature.

1. Mountains cause air to rise—the chinook wind on leeward slopes.

2. Away from mountains, ascension of air is the result of a disturbed balance of atmospheric pressure.

h. How atmospheric pressure is measured—the mercury barometer.

i. Weather and climate in relation to—
   1. Principal crops.
   2. Leading industries.
   3. Common occupations (local situations).

*j. The work accomplished by meteorological stations.
   1. Daily records of (i) the air pressure; (ii) the humidity; (iii) temperature; (iv) direction of winds; (v) speed of winds; (vi) cloud formations.

k. Systems of high and low pressures travel over the earth's surface. Their direction may be charted.
   1. Isobars and isotherms.
   2. Study of a weather chart.

l. Review the explanation of land and sea breezes.

THEME III: ANIMAL LIFE—OUR FELLOW INHABITANTS OF THE EARTH.

A.—A Study of Living Things.

a. All living things are either plants or animals.

b. Differences between living and non-living things (life and non-life).
   1. Living things feed—changes that take place in this food.
   2. All living things breathe.
   3. Living things can reproduce.
   4. Living things possess the power of growth; few non-living things do.
   5. Living things are affected by what there is around them.

   NOTE.—a. and b. above, handled by chart and discussion.

c. Differences between plants and animals.
   1. They require different kinds of food.
   2. (a) Living parts of all animals and plants made up of protoplasm—jelly-like or hardened by minerals into bone.
      (b) Protoplasm divided up into small compartments called cells.
      (c) Plant cells have rigid walls; whereas animals cells do not.

d. Living things are interdependent.
   1. *The distribution of plant-eaters is largely fixed by the distribution of plants on which they feed.*
      (a) Grazing animals—cattle, horses, sheep, live on grass and other green food and inhabit the grassy plains of the world.
      (b) Browsing animals—deer, moose, giraffe, live partly on the leaves and twigs of trees.
      (c) Rodents or gnawing animals—porcupine, rabbit, squirrel, beaver, gopher, muskrat, are adapted to living in almost every kind of environment from the water to the desert.

(d) Insects that live on plants.

(1) Chewing insects—grasshoppers, larva of cabbage white butterfly.

(2) Sucking insects—aphids, scale insects, adult butterfly.

(e) Plant-eating birds: swimmers, divers, waders scratchers, perchers.

2. *Flesh-eating animals are adapted by means of claws and specially developed teeth for securing food. The distribution of the flesh-eaters is largely fixed by the distribution of the animals upon which they feed.*

(a) Flesh-eating animals: dogs, cats, lions, tigers, bears, coyotes, weasel, lynx, mink.

(1) Few of these animals have been tamed except the dog and cat.

(2) Men have always hunted the flesh-eating animals (a) to protect themselves; (b) to protect their domesticated animals; (c) for their furs and hides; (d) as food.

(b) Flesh-eating birds—owls, hawks, eagles, vultures.

All are equipped with talons on the toes for seizing prey, and have beaks adapted for seizing and tearing the prey.

B.—How Various Factors Affect the Animal Population.

a. Natural disturbance—the number of any given species in any area depends upon factors such as food, climatic and weather conditions, disease, parasitism, and enemies.

b. Human disturbance—man invades virgin territory.

1. Demand for furs—depletion of beaver, buffalo.

2. Forests disappear and with them the birds and mammals. Removal of trees and cultivation of land causes rivers and streams to decrease in flow and even dry up. Effect on animal life in and around such water.

3. Swamps in which wild ducks found their food are drained.

4. Many harmful animals introduced.

(a) Cabbage butterfly, warble fly, potato bug.

(b) House sparrow.

(c) Introduction of rabbits to Australia in 1864. They became a pest.

(d) Introduction of mongoose from India to Jamaica.

(1) Rats almost disappeared. The mongoose multiplied and turned to young pigs, lambs, pups, kittens, frogs, poultry and birds for food.

(2) As frogs, toads, birds diminished in number, insects increased.

(3) Mongoose attacked by ticks, which weakened its vitality and reduced its rate of reproduction.

(e) St. Helena, in 1513, was a forested island. Portugese brought in goats for the sake of their milk. Within a hundred years the island was almost treeless because of the destruction of the undergrowth. Soil was washed away from rocky slopes.

C.—How Animal Life Has Affected Our Lives (Simple Survey).

a. The hoofed animals—horse, pig, deer, antelope, moose, sheep, ox, llama, elephant, buffalo, goat, camel, cow; use for food, clothing, work.

1. All live chiefly on vegetation, hence easily domesticated.
2. Usually live together in herds. They depend chiefly on massing or speed to protect themselves against enemies.
3. Domestication of many of these animals for man's needs.
   (a) Less dangerous to hunt than animals that eat flesh.
   (b) Easily herded together and moved from place to place.
   (c) Constant supply of meat, milk, skins; also beasts of burden for transportation of goods and cultivation of land.
   (d) They grow rapidly into adults; yield such products as milk and meat; maintain the world's supply of food.
   (e) Sheep, goat, camel, and alpaca furnish fibres used in world's clothing.
   (f) Industries dependent on domesticated animals—packing plants, shoe manufacture, woolen mills.
   (g) A study of the common breeds of cattle, their origin and use:—Jersey, Holstein, Ayrshire, Guernsey, Shorthorn, Hereford, Aberdeen Angus. The difference between the dairy type and the beef type of cattle. The meaning of "pedigreed stock."
   **(h) A similar study of (i) horses, (ii) sheep, (iii) hogs.

b. The claw animals—dog, cat, lion, bear, cougar, panther, leopard.

1. Important only as a source of furs.
2. Very few domesticated.
3. Dangerous to life in jungles, wilds, and timberland.

c. Other mammals.

1. Mammals important in northern Alberta because of their fur: mink, fox, wolf, skunk, muskrat, beaver, otter, rabbit, weasel, etc.
*2. An elementary study of how animals are trapped, skinned, and how the skins are preserved.
*3. Alberta's place in world trade as a producer of furs.
**4. Fur farming in Alberta.

d. Birds.

1. Wild birds most difficult of all animals to capture.
2. Domestication of birds—the hen.

A study of the common breeds of hens, their origin and use.

(a) Utility breeds (dual purpose)—Barred Rocks, White Wyandottes, Rhode Island Reds, Buff Orpingtons.

(b) Egg breeds—White Leghorn, Minorcas.

3. Beneficial and harmful birds.

e. Insects.

1. Insects harmful to man.

(a) Insects as disease carriers—house fly, mosquito, flea, louse.

(b) Insects that attack farm and garden crops—saw fly, cutworms, Colorado beetle, cabbage-white butterfly, wireworms, grasshoppers.

(c) Insects that attack trees and shrubs—forest-tent caterpillar, caragana blister beetle, plant lice, wood-borers. Examine the goldenrod, rose, or willow for galls.

(d) Insects that destroy stored food, books and clothing—meal-worms, larder beetles, ants, clothes moths, cock-roach, fish moth.

(e) Insects injurious to farm animals—botfly, blowfly, warble fly. (25% of all hides tanned in Canada are injured by this fly.)

2. Insects useful to man (discussion).

(a) Two insects that have been tamed—honey-bee and silk moth.

(b) Ladybird beetles—feed on plant lice, the eggs and young larvae of the Colorado beetle, and scale insects.

(c) Ground beetles—feed upon cutworms, wireworms, and eggs of grasshoppers.

(d) Dragon flies and damsel flies—feed upon flies and mosquitoes.

(e) Wasps—feed upon house flies and their relatives.

(f) Ichneumon flies—lay eggs in bodies of caterpillars; resulting grub eats the body of the host.

(g) Tachina fly—lays eggs on cutworms, army worms, young grasshoppers, and larvae (grubs) of leaf-eating beetles.

3. Study the life history of (i) the grasshopper, (ii) the cabbage-white butterfly, (iii) wasps.

D.—Parental Care of Animals (Simple Survey). (Chart showing stages in developmental changes.)

a. Single-celled animals—amoeba. No period of dependency.

b. Amphibians and fishes—lay eggs in sheltered places, and in such places and under such circumstances that the young will be near a supply of natural food. Parents know nothing of the fate of their offspring.

c. Insects—parental provision of bees, ants, parasitic insects, wasps.

d. Snakes—eggs guarded, but hatched by heat of the sun. The eggs of some snakes are hatched in the body of the parent. The young of most rattlesnakes are born this way.

e. Birds.

1. Nesting habits—eggs shaped to roll in circles.
2. Protective coloration in eggs and young.
3. Incubation.
4. Function of the yolk of the egg—food for young.
5. Young fed and defended.

f. Mammals; characteristics; parental care.

1. Nourished during gestation by the blood stream of the mother.
2. Suckled by mother after birth.
*3. Kangaroo—helpless little ones carried in a pouch and nourished by the mother.

Note the relationship between the number of young produced and the care given by the parents in each of the foregoing cases.

E.—How Animals Meet Environmental Changes of Heat and Cold.

a. Cold-blooded animals in winter seek a retreat which remains above freezing point.

1. Water animals, such as fish, clams, etc., are safe because water near the bottom of lakes, streams, and ponds never cools below the critical point. (See I, A, c.)
2. Snakes, lizards, turtles, frogs, newts, earthworms bury themselves in crevices in earth or in the mud of ponds below the frost line.
*3. Snails seek some sheltered place and form a partition across the opening of the shell; some, as many as six of these with intervening air spaces. Tiny breathing pores are left. (Compare with double doors and windows on a house.)

b. Warm-blooded animals: birds and mammals.

1. The body temperature of man is approximately 98.6°F.; of birds as high as 112°F.
2. This temperature is maintained by slow-burning in our bodies; the resulting loss is made good by food.
3. Hibernation.
   (a) Difference between internal and external temperature should be as narrow as possible.
   (b) Movement should be reduced to the least possible.
   (c) How accomplished.
      (1) Reduction in the rate of heart-beat.
      (2) Less tissue consumed.
      (3) Fall in body temperature—bats.
      (4) Store of body fat—ground hog, skunk, bear (only if weather is cold and food is scarce).

(5) Hair or fur becomes longer and thicker.

(6) Food stored—chipmunks and squirrels.

F.—How Animals Meet Environment Changes in the Food Supply.

a. Migration.

**1. Insects. (a) Migratory locust, in drier parts of Africa and West Asia; (b) butterflies—monarch spends the winter south of the Gulf States and California, returning north in the spring. The painted lady in the spring crosses the Sahara, traverses the Mediterranean Sea and reaches north Europe in June and July. The cabbage butterfly is a migrant in Europe in July; from the islands in the Baltic they fly over Germany like clouds of snowflakes.

2. Birds—leave when food gets scarce; forced north again by over-crowded conditions in the south. Make maps of migration routes in the Americas.

(a) Some migrate by day—ducks and geese. Swallows, hawks, nighthawks, and chimney swifts can migrate and feed together (catch food on the wing).

(b) Some migrate by night—robin, meadowlark, shore birds, warblers, and orioles must utilize the day-light hours to seek food to repair muscular exhaustion.

(c) Migration from north regions of Canada—snowflake, arctic owl.

****G.—Elementary Study of Some Animals.**

All animals can be placed in two large groups—animals with backbones, and animals without backbones.

a. The Amoeba.
Structure, movement, feeding, breathing, reproduction.

b. Earthworm.
Structure, movement, feeding, breathing, reproduction.

c. The Grasshopper.
Structure, movement, feeding, breathing, reproduction.

d. The Bee as a social insect. Division of labour in the hive.

e. The Fish.
Shape, movement, feeding, breathing, reproduction.

f. Frog.
Life history, movement, breathing.

g. Bird.
Classification, breathing, feathers, adaptations to mode of living (feet, bills, relation of length of neck to length of legs in wading birds.

h. A study of the teeth of animals; meat teeth, grass teeth, and wood teeth.

OBSERVATIONAL WORK

A.—Fall.

1. Bird life; departure charts.
2. Cocoons. Make a collection.

3. Temperature records; weather calendar.
4. Wind directions: relation to temperature and velocity changes.
5. Grasshoppers; autumn stage of metamorphosis.
6. Frost and its effects.
7. Cloud formations.
8. Air pressure changes—barometer and daily newspaper reports.
9. Fire risks—prairie and bush fires.
10. Conservation as applied to water power, bird life, food.

B.—Winter

1. Animal tracks in the snow.
2. The Chinook winds.
3. Winter birds.
4. Uses for solid water, in work and play.
5. Relative humidity of the air, moist or dry.
6. How animals protect themselves against cold weather.
7. Sky phenomena—sun dogs, ring around the moon, northern lights.
8. Prevailing winds.
9. Hoar frost on trees, wires, etc.
10. Effect of pressure on the freezing point of water, icy roads.

C.—Spring.

1. Arrival of birds; chart study.
2. Pond life—frogs, toads, larvae of mosquito; aquarium work.
3. Floods—rivers, creeks, etc.
4. Clean-up week; arbor day.
5. Preservation of wood and iron by the use of paint, varnish, and creosote.
6. Emerging of moths from cocoons.
7. Nest building of birds.
8. Observe bees and ants at work.
9. Make a collection of butterflies.
10. Drainage problems in the locality.

SECTION B.

THEME 1. LITHOSPHERE: THE EARTH'S CRUST—EARTH SCIENCE.

Preamble:

The solid earth, like the air ocean and water ocean, is of great importance to man. It furnishes him with a home. It is almost everywhere covered with a mantle of soil, in which food-plants and other vegetation grow. Everywhere beneath the soil is found solid bed-rock, from which many valuable mineral substances are obtained.

a. Interior temperature.—Indications that the earth's interior is highly heated: Hot springs; volcanoes erupt melted rock; mines show an increase in temperature of about 1°F. for every 50 or 60 feet of descent.

b. Internal state.—Indications that the interior of the earth is solid: If it were liquid there would be tides in it; the behaviour of the earth toward other spheres is that of a solid; earthquake shocks in Japan have been measured by delicate instruments in England, and the time of passage and nature of the record received indicate a solid interior; the interior is prevented from melting by the tremendous weight, or pressure, of the rocks that rest upon it.

A.—Irregularities of the Earth's Crust (Simple Survey).

a. Cooling process: formation of oceans, plains, plateaus, mountains.

The earth's crust is in slow movement; the outlines of the lands and oceans are ever varying.

1. As the interior of the earth cools and shrinks, the outer crust wrinkles, causing some parts to rise, and others to settle.
2. This has caused continental elevations and oceanic basins; and on both of these, mountain chains and volcanoes.
3. The average depth of the ocean is about five times the average height of the land.

b. The continents.

1. Meaning of the terms continent, continental shelf, continental slope.
2. Continents consist of plains, plateaus, and mountains.
3. They owe their outline to mountain skeletons connected by plains and plateaus (main and secondary axes in North America).
4. Relation of continent forms to man. Correlate with Social Studies.
   (a) Separation of the continents has interfered with the spread and movement of peoples (barrier).
   (b) The average elevation of the land not extreme; land can thus support a dense population.
   (c) An irregular coast line favours navigation; Gulf of St Lawrence.
5. The continents are clustered around the north polar regions with tongues projecting southward. Examine globe at polar areas.
6. The continents are characteristically triangular in shape, and taper southward.

c. The oceans.

1. Ocean water is centered around the south polar regions, with triangular tongues widening northward between the continents. Globe study.

2. Relations of the oceans to man.
   (a) As a source of food; e.g., fishes and other valuable animals.
   (b) As the route and highway of navigation.
   (c) As a source of water vapour.
   (d) In modifying climate.

d. Man uses these irregularities in the earth's surface.
   1. Steeper hills and mountain sides still forested—lumbering industry.
   2. Narrow valleys—waterfalls, mills, hydroelectric power, mining.
   3. Open plains and low hills—everywhere inhabited.

B.—Rocks of the Earth's Crust.

a. Sedimentary rocks. Relate to settling of sediment.
   1. Nature of sedimentary rocks—in layers or strata.
   2. Origin.
      (a) Fragmental rocks—gravel beds forming conglomerates, sand beds forming sandstone, mud forming shale.
      (b) Chemically formed rocks—stalactite, salt, gypsum.
      (c) Organic rocks—most limestones from shell animals, coal from vegetation (bituminus, lignite, peat).
   3. How formed.
      (a) Assorting power of waves and currents.
      (b) By pressure and mineral cements (carbonate of lime, oxide of iron, silica).
   4. Fossils and the story they tell.
   5. Test for limestone with hydrochloric acid.
   6. Use for building purposes.

b. Igneous rocks. Relate to heat and time of cooling.
   1. Origin—formed by the cooling of molten rock, (a) on the surface near volcanoes as lava flow or volcanic ash; (b) as intruded masses in the crust (dikes, pipes, and domes).
   2. Examples—granite, basalt, obsidian.
   3. Use. Minerals of lava are rich in plant food. Indicators of presence of metals in mineral form; granites for buildings and monuments.

c. Metamorphic rocks (interpret term in insect life cycle).
   1. Origin. When subjected to great pressure, or heat, or both, rocks are changed or metamorphosed.
      (a) Limestone is changed to marble. (Used decoratively.)
      (b) Shale is changed to slate. Used for roofing.
      (c) Sandstone is changed to quartzite.
   2. Especially common among mountains where, during the mountain formation, the strata have been subjected to great pressure and heat.

3. Examples—marble, slate, quartzite, anthracite coal, gneiss.
4. Test for marble with hydrochloric acid.

NOTE.—1. Discuss rocks within the student's environment only.
2. Do not stress chemical composition.
3. Make a collection of the rocks of the neighbourhood.
4. Observe types of rocks commonly used for different kinds of buildings. Give reasons for selection of each type.
5. Discuss decomposition of granite: feldspar to clay and quartzite to sand.

C.—Formation of Soil.

Weathering and erosion by such agencies as—

a. Rain—(i) impact; (ii) solution.
b. Freezing water.
Experiment on expansive force; fill bottle with water; cork tightly and let freeze.
c. Rapid changes of temperature.
d. Plants.
e. Animals.
f. Running water—observation of water-worn rocks.
g. Snow and ice; glaciers.
h. Wind erosion—wind dunes, waves, sand blast.
i. Underground water—caves, stalacites, and stalagmites.

NOTE.—1. Distinguish soil from subsoil.
2. Distinguish sedimentary soils from transported soils.
3. Discuss such topics as pot holes, glacial scratches, formation of peat soils.
4. Make diagrams to show young, middle-aged, and old valleys.
5. Observe evidences in your locality of the various factors or erosion.

D.—Kinds of Soil.

Observational and experimental studies of sand, clay and loam; relation to elements in granite.

a. Classification according to derivation: sand, clay, humus, loam.
b. Properties of each. Perform experiments.
1. Texture and structure. Cultivation can improve the structure of a soil but not the texture.
2. Moisture-holding capacity; relation of texture to moisture-holding capacity. Experiment:
3. Adhesiveness. Effect of working clay when wet. Experiment.
4. Tenacity with which moisture clings to the fine particles

of a clay soil. A plant will wilt more quickly in a clay soil than in a sandy soil containing an equal amount of water. Experiment.

5. Capillarity in relation to soil types. Experiment.

c. Discussion of soil factors: moisture, air, lime, alkali, and acid.

(a) Kinds and function of water in the soil; free, capillary, and hygroscopic.

(b) Function of air in the soil; bacterial action, root development, seed germination.

(c) Test for iron rust with a damp cloth.

(d) Test for lime with hydrochloric acid.

(e) Use of red and blue litmus paper to test for soils strongly acid or basic.

d. Special importance of each kind of soil on plant growth.

1. Sandy soil—a barren soil; subject to leaching of plant food. Because it holds little water, it warms up quickly in the spring and is good for early vegetables.

2. Clay soil—because of its tendency to hold water, clay soil warms slowly in the spring and is most suitable for crops which grow slowly and ripen late in the season—corn, wheat, oats, barley, rye. It is rich in minerals such as potassium, sodium, calcium, magnesium, and iron.

3. Loam soil—like clay soil, it will hold water well, and like sandy soil, it will not cake when dried. It is open enough to admit a circulation of air. Being dark in colour, humas adds warmth to soil, adds fibre, prevents drifting, and provides food for the germ life of the soil. An excellent soil for garden and field crops.

e. Importance of conservation and improvement of soils by addition of organic substances and by tillage.

1. Addition of plant foods—barnyard manure, green manure (crop rotation); chemical fertilizers.

2. Tillage.

(a) Fall plowing—(1) Deep plowing brings up fresh soil. (2) Loosens soil to store moisture to a greater depth. (3) Danger of soil drifting (clod mulch).

(b) Spring plowing—(1) Shallow plowing and surface cultivation conserve moisture. (2) The soil mulch.

(c) Summer fallow: benefits—keeping down weeds; harm—soil drifting: loss in money through disuse of land is offset by conservation of moisture.

f. Demonstrations.

1. Show how water rises in capillary tubes. Explain the phenomenon. Discuss the need for a supply of free water at a proper level in the soil.

2. By an experiment, show the action of a soil mulch.

3. Water (physical) analysis of a sample of mixed soil. Settling experiment to discover layers of soil particles.

E.—The Uses of Soils to Man (Simple Survey).

a. Supply plants with necessary mineral foods.
b. A reservoir from which plants take both water and air (for germination and for bacteria).
c. Certain kinds of clay are used for making pottery and china.
d. Bricks, artificial stones, and tiles are soil products.
e. Some of our cleaning preparations are products of soils: handcleaners, Old Dutch Cleanser, etc.
f. Glass is made from sand; prepare a report on the process.
g. Sand in the sand blast for cleaning spark-plugs, and for etching glass and cleaning buildings.

***F.—Other Products of the Earth's Crust** (Chart Study).

a. From slate—roofing slates, blackboards.
b. From shale and limestone; from limestone—quicklime, plaster, mortar and stucco, agricultural lime.
c. From metal ores—iron, copper, lead, zinc, and aluminum, etc.
d. Coal, oil, and gas—a discussion on these substances as found in Alberta.

****G.—The History of the Earth Reconstructed** (Story of the Rock Strata).

a. Parts have been covered with seas and lakes.
b. Thickness shows that the earth must be old (Grand Canyon layers).
c. Rock-soil cycle.
d. Fossils.
   1. Preservation of actual plants or animals.
   2. Moulds and casts.
   3. Petrification.
e. Where fossils are found (formed in sedimentary layers).
f. Study of fossils reveals—
   1. Order of strata being laid down (Grand Canyon—book of the earth).
   2. Length of time gaps. Relate to modern depositions; e.g., Bermudas.
   3. Identity of strata of the same age.
   4. Development of plants and animals to present forms.
   5. Causes of the extinction of early forms.

THEME II: THE PLANT KINGDOM: PLANT LIFE—THE LIVING COVER OF THE EARTH.

Preamble:

From a study of the earth's crust, we pass to the living covering of the earth. The part of the living covering of the earth most often seen is the grasses. The cereals, or grains, which furnish the largest

part of human food belong to the grass family. Large regions covered with trees are forests or forest areas. The common fruits of the world grow on trees. There are many other flowering plants such as most of our wayside flowers; most of our common weeds, our garden vegetables; and the plants of our flower garden. Such plants as ferns do not have flowers. There is the great flora of the sea; the humble growths upon walls and gutters, and in ponds.

NOTE.—Before beginning this theme, turn to Theme III, Animal Life, of Section A, Grade VII, and study or review Unit A, part a, b and c (Life and non-life).

A.—The Natural Environment of Plants (Simple Survey).

The natural environment of plants consists of climatic conditions, soil, and other plants, and animals.

a. Climatic conditions.

1. Water—the one basic need.
   (a) Water combined with other substances fills the cells and circulates through the organism as cell sap for food manufacture.
   (b) In a dormant condition, plants may survive a long period during which water is not available; e.g., deciduous trees and conifers in temperate regions.

2. Temperature.
   (a) When temperature is low, sap freezes. (Sap stored in tree roots in winter.)
   (b) When temperature is high (or the air is dry) water evaporates—transpiration. (See D, 6.)
   *(c) There is a particular temperature at which a certain seed germinates best and a temperature below which it will not germinate at all, and another temperature above which the embryo will not grow.

	Lowest	Most Suitable	Maximum
Wheat.....	41°F.	84°F.	108°F.
Barley.....	41°F.	84°F.	100°F.
Corn.....	49°F.	91°F.	115°F.

3. Influence of climate on distribution of plants: *zones of plant life* (diagram study).
   (a) Arctic flora (e.g., in Baffin-land).
      (1) Only surface soil is ever free from ice (frost).
      (2) Season is short. Plants quickly flower and bear fruit.
      (3) None grow tall. Important that first snows shall cover and protect them.
      (4) Examples—lichens, mosses, grasses, dwarf willows and birches.
   (b) Temperate flora.
      (1) Scrub forests near polar zones; timber line marked by scraggy trees; e.g., in North-west Territories.

(2) Deciduous trees increase in number and variety in warmer parts.

(3) Short prairie grass in southern part of the temperate zone; e.g., south Alberta.

(4) Plants are adapted to the winter in several ways:

(i) By suspension of activity.

(ii) By dying down to the ground.

(iii) By dying completely, leaving seeds to continue the species.

(iv) Many differences in flora according to temperature, exposure, humidity, and soil.

(c) Desert flora.

(1) Flora is scattered.

(2) Plants show many devices for storing water. Surface for evaporation reduced to a minimum Examples.

(3) Devices for repelling plant-eating animals: sharp, irritating spines; tough, pale green leaves with a disagreeable odor and taste; e.g., common sage brush; fertile oases and palms.

(d) Tropical flora.

Numerous varieties of plants within narrow areas.

(1) Savannahs or tall grass lands; e.g., llanos of the Orinoco, Brazilian campos, African savannahs.

(2) The rain-forest, which grows where moisture and heat are continuous the year round. (Luxuriant forest growth of the jungles.)

(i) Tall trees, entangled by great vines.

(ii) Interior dark, still, hot, and steamy.

4. Plant areas according to topography.

Mountain flora:

(1) Because of changes in temperature, the flora varies with the altitude.

(2) On high mountain slopes, forests disappear.

(3) Upper portion—alpine flora.

At the equator, all transition types exist from jungle vegetation to tundra.

5. Plant societies related to water.

Water plants—of both salt and fresh water.

(a) Varied forms—floating, anchored, some with true roots.

(b) Rushes, reeds, mosses, and lilies; common fresh-water and swamp plants.

(c) Trees—cypress, black gum, willow, and mangrove.

(d) Provisions for securing air.

(i) Internal air-spaces.

(ii) Mangrove roots start from above water surface (even from lower limbs).

(iii) Knobs, or knees, grow upward from cypress roots and project above the water surface.

b. The soil.

1. Part of the chemical foods which supply plant nourishment come from the soil. (Report on soilless experiments.)
2. Soil must be such that roots can penetrate.
3. It must be able to hold some water.
4. Plant food must be readily soluble in water.
5. It must be free from any large amounts of chemicals that poison plant tissues (alkalinity).

c. Other plants. (Simple Survey.)

No square inch of soil remains for which plants do not compete.

1. Roots compete with roots for water and the dissolved nutrient salts.
2. Leaves compete with leaves for the sunlight necessary in the manufacture of food.
3. Overcrowding. Sow lettuce too thickly, and few perfect plants will be produced.
4. Plants are overshadowed and stunted by growth all about them.
5. Parasitic plants—dodder, mistletoe, blights, mildews. These prey during their entire lives upon other plants (hosts).

*6. Lichens (on bare rocks); mangroves (in salt water); fresh-water plants less subjected to competition.

7. Plant societies: wet region, mid-region, dry region, with types found in each.

d. Animals. (Simple Survey.)

1. Animals that eat plants (herbivorous).
2. Earthworms and other tiny animals in the soil admit air and warmth.
3. Bees and other polen-carrying insects.
4. Harmful insects—cutworms, wireworms, saw-flies, caterpillars (cabbage white, forest-tent), grasshopper, plant lice.
5. Beneficial insects—ladybird beetle, etc.
6. Beneficial and harmful birds.
7. Animals to whose fur burry seeds cling.

B.—Study of a Green Plant (Bean or Corn).

a. A study of its parts.

1. Root—classification; root hairs, rootlet and main root; function of each.
2. Stem—division into nodes and internodes; classification into solid and hollow stems.
3. Leaves—a complete leaf; arrangement on stem; types and veining; cross-section study.

4. Flowers—parts and their uses; essential and non-essential parts.
5. Seed—one and two seed coat types; parts of seed (diagram studies of corn and bean).

b. Special problems to study.

1. How plant food enters the roots—osmosis (experiment).
2 How plants get rid of excess moisture—transpiration (experiment).
3. How food is manufactured in the leaf—photosynthesis (chart).
4. How seed is produced in the flower—pollination and fertilization (diagram).
5. The meaning of germination of seed—the germ (experiment).
6. How the seedling "comes up" above the ground—bean and corn (observation and experiment).

NOTE.—*Wherever possible, experimental work should be done.*

C.—How Plants are Propagated and Distributed.

a. Nature's methods.

1. By seeds—how distributed. (Students to make collections during autumn months.)

(a) Explosive fruits.

(1) Ripe fruits of stinkweed, shepherd's purse, pansy, and violet, throw their seeds when disturbed.

(2) Caragana, peas, beans when dry snap open, and by twisting they throw the seeds several feet.

(3) The squirting cucumber has an elastic tissue which suddenly contracts, discharging seeds with great force.

(b) Transportation by winds.

(1) Dandelion, asters, thistle,—calyx serves as a parachute.

(2) Winged fruits—maple, elm, ash, birch.

(3) Silk of milkweed; wool of the cat-tail; cottony seeds of willow and poplar.

(4) Globular shape of Russian thistle, tumble weed, pepper grass—plant is blown by wind.

(5) Censer action—poppy (salt shaker).

(c) Transportation by water.

(1) Cocoanut and willow seed have an outer fibrous husk which serves as a life-preserver (waterproof).

(2) Air chamber in the cranberry.

(3) Corky-margin on seeds of milkweed; corky adhesion on narrow-leafed dock.

(d) Transportation by birds.

(1) Seeds of berries and other fleshy fruits pass through digestive tracts of birds uninjured.

(2) Small seeds carried in mud that clings to the feet of birds.

(e) Transportation by other animals.

(1) Many seeds and fruits bear spines, hooks, and hairs which adhere to the coats of animals, and to clothing—burdock, cockleburs, beggar's ticks.

(2) Nuts carried by squirrels.

*2. By runners—strawberry.

*3. By suckers—red raspberries, blackberries, roses, lilacs.

*4. By underground stems or rootstocks—couch grass, thistle, potatoes.

*5. By bulbs—onions, tulips, hyacinths, daffodils.

*6. By corms—gladioli.

*7. By spores—mushrooms, molds, ferns.

**b. Artificial propagation—

1. By cuttings or slips.

(a) Root-cuttings—rhubarb.

(b) Stem-cuttings—popular, willows, caraganas, geraniums, fuchsias.

2. By layering—black raspberry.

3. By grafting—purpose:

(a) To hasten the production of fruit on young fruit trees.

(b) To improve the quality of the fruit.

4. By budding—practised for the same purpose as grafting.

D.—Barriers to the Spread of Plants (Simple Survey).

1. Oceans (water in general)—to land plants. Island floras are less varied than those on the mainland. Water barrier sometimes overcome by winds, birds, and ocean currents.

2. Deserts—except to those adapted to desert conditions.

3. Tropical forests—debar plants adapted to desert life.

4. Mountain chains. Plants will not spread into cold climates above.

**5. High summer temperatures, frequent high winds, and low humidity of the air in southeastern Alberta, result in a high rate of evaporation:

	Mannyberries.	Lethbridge.	Swift Current.
Average annual precipitation	11.31"	15.96"	15.31"
Evaporation	32.00"	24.09"	27.07"
Ratio of evaporation to precipitation..	2.8:1	1.6:1	1.8:1

(a) At Lacombe, Alberta, the ratio is 0.9:1. These ratios give a fair indication of conditions for plant growth, the lower ratio being the more favourable.

(b) While 12 inches of precipitation alone is sufficient to grow a crop, the rate of evaporation is one of the determining factors; the soil type is an important factor also.

(c) Crop production is the most difficult at about the 4th Meridian (excluding the Cypress Hills area) and becomes more favourable towards both east and west, until approximately the same conditions are found at Lethbridge and Swift Current, Saskatchewan.

E.—Gardening—Intensive Agriculture.

1. Constituents of soil and their uses to plants. (See Unit on Soil.)
2. Values of different methods of preparation of soil for plant growth (hoe, rake, weed).
3. Planning.
   (a) Selection of seed—vitality and purity (experiments).
   (b) Preparation and use of hotbed and cold frame.
   (c) Size, location, and surroundings—variety of crops.
4. Planting and cultivating.
   (a) Methods of planting and transplanting.
      (1) Starting seeds in flats (trays).
      (2) Outdoor seed planting.
   (b) Thinning and cultivating—use of hoe, cultivator, plow; relation of cultivation to aeration and capillarity.
   (c) Weeds of the garden—kinds, origin, harmfulness.
5. Harvesting and storing garden crops.
   (a) Nothing should be allowed to go to waste.
   (b) Harvesting—how accomplished.
   (c) Storage—pit, root-house, and cellar storage. Chief requirements—a dark, cool place; not too dry.
   (d) Crops with two harvests due to double planting—radish, lettuce.
   (e) Canning, preserving, dehydrating, pickling.
   (f) Refrigeration—ice box (wet or dry ice); electric refrigeration.

F.—Trees (Simple Survey).

1. Their value in (a) soil enrichment from leaf mold; (b) shade; (c) cooling the atmosphere; (d) beautifying streets and home, thereby increasing property values; (e) homes for birds.
2. Parts of a typical tree and their functions. (See Structure of a Plant.)
3. Planting of trees.
   (a) Desirable kinds of trees to plant for wind shelter; for beautification.
   (b) Methods of planting and transplanting.
4. Protection of trees.

(a) Enemies of trees and how controlled (e.g., forest-tent caterpillar).

(b) Friends of trees and how protected.

*(c) Community and provincial regulations for care and protection of trees under their control.

5. Economic value of wooded areas.

(a) In regulating stream flow (watershed); (drainage slopes in north Alberta).

(b) In producing food, lumber, fuel, rubber, pulp, resin, turpentine, wood alcohol, rayon.

(c) Windbreaks.

6. Conservation of trees and wooded areas.

(a) Meaning, importance, and methods of conservation.

(b) Reforestation.

***G.—Test Seeds for Stored Food.**

1. Starch.

(a) Crush 5 or 6 peas; boil in water for 5 minutes; pour a few drops of the solution into a test tube; add water up to 10 c.c.; add a few drops of tincture of iodine and boil.

(b) Reaction.—Starch turns blue in colour.

2. Protein.

(a) Crush 5 or 6 peas; boil with 10 c.c. of water; cool by holding the test tube in cold water; after you are sure it is cold, add a few drops of nitric acid; boil again and cool.

(b) Reaction.—If a yellow colour develops, protein is indicated. Add a few drops of ammonia water. If the yellow colour deepens to orange, you have a further indication of protein.

(c) Millon's reagent or the Biuret reaction may be substituted.

3. Grape sugar.

Fehling's solution—

(i) Copper sulphate, 35 grams in 500 c.c. of water.

(ii) Rochelle salts, 173 grams and 50 grams of sodium hydroxide, in 500 c.c. of water.
NOTE.—Keep separate and mix in equal quantities when required.

(a) Crush 5 or 6 peas (use late varieties; more sugar); boil in water for 5 minutes.

(b) Heat about 10 c.c. of Fehling's solution in another test tube. No yellow colour indicates that the solution is in good condition.

(c) Add contents of test tube containing boiled peas to test tube of Fehling's solution. (Keep flame near upper surface of boiling mixture.)

(d) Reaction.—If grape sugar is present in sufficient amount, a yellow to brick-red colour will develop in the mixture.

4. Oil.
   (a) Crush walnut kernels or peanuts on writing paper and note the translucent grease spots.
   (b) Heat linseed in a test tube held horizontally. Drops of oil appear on the upper surface.
   (c) Ether extraction.
      (1) Crush sunflower seeds and put in a small test tube.
      (2) Add ether or benzine until the test tube is two-thirds full. Shake well; let stand and shake again.
      (3) Filter and evaporate the filtrate.
      (4) Reaction.—Rub substance that does not evaporate on writing paper and see if you get a translucent spot.
5. Value of stored food.
   (a) Take forty bean seeds; from ten remove about three-quarters of the cotyledons; from ten remove one-half the cotyledons; from ten remove one-quarter of the cotyledons; leave ten as they are.

      NOTE.—Be careful not to injure the growing axis. Cover cut portions with vaseline.
   (b) Plant the forty seeds in blotting paper over sawdust. Give them the correct conditions necessary for germination. Compare the results at the end of 5 days; 10 days; 14 days.
   (c) An alternative method is to use the whole seeds; weigh the seeds only, before and after germination. Compare these weights.

***H.—Some Interesting Things to Do.**

1. Discuss the conditions necessary for germination of seeds. Seeds require air, moisture and heat.
2. Discover the effect of (i) water on the root, (ii) gravity on the root and stem, of a growing plant.
3. Discover the nature of respiration in plants.
4. Observe how a deciduous tree prepares for winter. Note leaf scars. Compare this tree with a pine or spruce tree in late autumn.

****1.—How Plants Came to be Studied and Classified** (Simple Survey).

1. Man's first interest in plants was for their use as food.
2. Certain plants were cultivated and improved for food.
3. Medicinal values were discovered. This interest led to first attempts to describe plants accurately. A physician invented a system of naming plants.
4. Collecting, pressing, naming and describing plants became a fascinating study. The more they were studied, the more similarities were found between them and animals.
   (a) They need same conditions to live (air, water, heat).
   (b) They perform the same vital processes (feeding, growing, reproducing).

(c) They have organs for these processes.

5. The discovery that green plants give out oxygen and take in carbon dioxide was an important one. (Plants help animals by keeping air pure—balance of nature.)

6. Plants are the only food-makers in the world; the only means known whereby energy from the sun can be gathered, and stored.
   (a) They feed themselves, their offspring, and animals.
   (b) This food supplies energy.
   (c) They need energy for movements, such as climbing; to overcome obstacles; to make and transport food; to divide cells.

7. There are too many species to be considered separately, so they are classified in large groups or families (closely related species or kinds); e.g., Rose Family—*Rose* (cherry, apple, plum, wild rose—all have enlarged receptacle); *Composite* (dandelion and thistle flowers); *Pod* (legumes); *Cross* (mustard flower).

8. The names accepted as valid by the Dominion Government at Ottawa and by British authorities are listed in a great book called the "Index Kewensis" (index of Kew Botanical Gardens, London, Eng.).

NOTE.—To secure the correct name of a plant, send the following to Dominion Botanist, Division of Botany, Ottawa:—

1. A sample in the best possible condition, including root.
2. Information: (a) place of collection; (b) date of same; (c) collector's name and address; (d) description of soil, amount of moisture, neighbouring plants, etc.

THEME III: THE UNIVERSE—LIMITLESS SPACE.

Preamble:

For centuries men thought that our solar system made up the whole of the universe; that the sun and our earth, with the other planets and their moons, were the only bodies existing in space. Progress in understanding the vast space of the universe was made when men learned to measure the speed of light; and to discover how far away the stars are from us. Heavenly movements were studied. The spectroscope led to an understanding of the composition of heavenly bodies.

The sun is the centre of our solar system. It is of vital importance, for its heat and light make life on the globe possible. The heat sets the air in motion, forming winds which bring rain, cause waves and currents in the ocean and modify climate.

The movements of the earth—rotation and revolution—are also important. Rotation brings day and night, which influences the habits of men, animals, and plants. Revolution causes seasons, which have a still greater effect on life.

The stars are part of man's environment, distant but valuable in determining latitude and time. The scientist studies these distant

parts of the universe. We have seen man battling, studying, then controlling the forces of nature. While it may not be possible to control the stars, we can make use of them.

A.—The Earth and Its Neighbours.

a. The sun and our solar system.

1. The center of the solar system.

(a) Our sun is a star.

(b) Around it are nine great planets, whirling along their orbits at tremendous speed: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto.

(c) Attractive force, called gravitation, keeps the planets in their orbits around the sun.

*(d) It was once thought that the earth was the center of the solar system. (Read about Ptolemy.)

(1) Men observed the sun rise and set.

(2) They noticed that the moon and stars rise in the east and set in the west.

(3) They concluded that the earth was standing still and all heavenly bodies moved in great circles around the earth each day.

*(e) Copernicus and the Copernican theory.

(1) Rising and setting of sun, moon, and stars is due to the turning of the earth on its axis (demonstration).

(2) Galileo, a century later, with his telescope viewed the turning movement of other bodies similar to the earth.

(3) Foucault, 1851, and his great pendulum. Start the pendulum swinging in the direction of the floor boards; in a little while it will change the plane of its swing. (Room has actually turned with the earth.)

(4) Experiment.

Take a circular dish or bowl filled with water. Dust the surface with chalk. Place a line (diameter) of charcoal dust upon the chalk. Mark this line on the dish. The water will appear to turn, as indicated by the movement of the black line. Conclusion.—The water has the tendency to lag behind the rotation of the earth.

2. The sun—its size, composition, distance from the earth, temperature.

(a) Size.—100 times the diameter of the earth; its bulk more than a million times as great.

(b) Composition.

(1) No elements are known to exist on the sun that do not exist on the earth; discovery of helium (spectroscope; Fraunhofer's lines).

(2) At the temperature of the sun, all the chemical elements are in form of gases.

(3) Pictures taken at the time of an eclipse, indicate an atmosphere on the sun, and show evidence of terrific forces that keep it continuously moving.

(c) Distance from the earth—93,000,000 miles.

(d) Temperature—at the surface about 11,000°F.; very much hotter in the interior, possibly as high as 180,000,000°F.

3. The sun as a source of energy. (Chart study.)

(a) Whole earth receives less than one billionth part of the energy given out by the sun. (Radiation in a sphere.)

(b) Every square yard of the earth's surface receives energy at the rate of 1½ horse-power; definition of horse-power.

(c) Energy of sun stored up in fuel; as coal, peat, petroleum. (Chart Study.)

(d) Energy of sun's rays is stored in food; meaning of "canned sunshine."

(e) Energy of sun's rays changed into heat; burning glass.

(f) Relation of water power to the sun. (Chart study.)

(g) Certain rays of the sun's energy strike the eyes, are changed to light and enable us to see.

(h) Causes wind to blow.

4. Other ways in which the sun influences us.

(a) Colour is refracted sunlight. Pass a beam of sunlight through a glass prism.

*(b) Sun-burn; ultra-violet rays.

(1) Treatment of rickets, tuberculosis, some skin diseases.

(2) Use of quartz glass in hospitals.

(3) Fog, soot, clouds, dust and wool clothing filter out the ultra-violet rays.

(4) Ultra-violet rays affect paint; weaken oxidized oil; reduce hardened paint to a brittle powder which "chalks" and wears off easily.

**(c) Sunspots—observed relation to Aurora Borealis; also to radio reception (Height of the layer of ionized air, called the Kennelly-Heaviside layer.)

5. The sun through telescope and camera.

*(a) Corona, photosphere, and chromosphere.

*(b) Sunspots—nature; period of maximum and minimum sunspots.

(c) An eclipse of the sun.

(1) Diagram to show the cause.

(2) Primitive people were terrified during an eclipse.

(3) Scientific knowledge removes fear.

(4) Movement of moon and sun so well known that the time of future eclipses may be told with great accuracy.

(5) The path of the shadow.

b. The earth.

How the Earth's Motions Affect Conditions upon the Earth.

1. Changes occur in the length of day and night (demonstration of seasons).

   (a) Days in summer are much longer in Alberta than days in winter.

   (b) Axis of the earth inclined at an angle of 23½ degrees from a line perpendicular to the plane of the earth's orbit.

   (c) Earth travels its orbit in 365¼ days (revolution).

   (d) Earth turns on its axis once each 24 hours (rotation).

   (e) Earth's axis always points to the same direction in space (parallelism of the earth's axis).

   (f) Significance of dates, March 21, June 21, September 21, December 21 (equinoxes and solstices).

2. Summer is hotter than winter in Alberta.

   (a) Slope of the sun's rays. Use diagrams to illustrate.

   (b) The heat equator. Vertical rays of sun shift back and forth between 23½ degrees north and south of the geographical equator. Use of abbreviation, P.V.R.= Point of Vertical Ray.

   (c) The seasons.

      (1) Temperature, rainfall and hours of daylight affected by seasonal changes.

      (2) Some exchanges of how plant and animal life are influenced by these changes in their environment.

3. How time is measured.

   *(a) An apparent solar day; a mean solar day; local noon; meaning of word "meridian." Telling time by longitude.

   (b) Standard time; five zones in America; map of Canada's time belts.

   (c) Daylight saving.

   (d) A calendar year.

      (1) The mean solar year in 365 days, 5 hours, 48 minutes, and 46 seconds.

      (2) Establishment of leap year.

c. The earth's satellite—our nearest neighbour, the moon.

1. Limits of man's penetration into the atmosphere. Mount Everest, aeroplane and gondola ascensions.

2. Moon—size, distance away, physical condition; the most conspicuous object in the night sky.

(a) Heat and cold on the moon.

(1) A complete day, about twenty-nine of our days in length; length of day and night compared with length of day and night at the earth's equator.

(i) Day-temperature as high as 244°F.

(ii) Night-temperature as low as—243°F. (perhaps much lower).

(2) No atmosphere (air and clouds) to act as a blanket to prevent rapid heating by day and rapid loss of heat by night.

(b) Light and darkness on the moon (moon markings).

(1) Diffusion of light on the earth by moisture and dust in our atmosphere.

(2) No such atmosphere on the moon.

(3) Where light does not strike, there is darkness.

(i) Allow a beam of sunlight to enter a darkened room through a slit in the blind; place a piece of rough, white paper in the beam and note the difference in the lighting of the room.

(ii) Shadows on the moon are very sharp.

(4) No twilight in the moon's long day.

(c) No vegetation. This depends on air, water and temperature.

(d) No sound on the moon: no medium (air) to carry sound.

(e) The moon under a telescope.

(1) Surface covered with many large craters; no evidence of erosion.

(2) There is no water on the moon.

(3) "Man in the moon" simply areas of land of different appearance (hollows, plateaus, hills, deep craters).

(4) Because the moon's time of rotation is nearly equal to its time of revolution around the earth, we see only one side of the moon (always the same side). 59% of moon's surface has been seen, 41% will never be seen.

(f) Weight on the moon.

(1) Weight is really gravity pull.

(2) Gravity pull on the moon about one-sixth of that on the earth.

(i) A 150-pound man weighs only 25 pounds on the moon.

(ii) One could jump six times as high as on the earth.

(iii) Gravity force not great enough to hold water vapour or other gases on its surface. This is the reason for its being airless, waterless and soundless.

3. The earth-moon relationships.

(a) The moon gives us light by night. It shines by reflected sunlight.

(1) Moon's surface, as a reflector of light, equal to that of ordinary sandstone.

(2) Phases (shapes) of the moon—new moon, first quarter, full moon, third quarter. Demonstrate with a model.

*(b) Tides.

(1) Ebb and flow; neap and spring. Diagram study in colour.

(i) The earth turns on its axis once every 24 hours.

(ii) A high tide occurs approximately every twelve hours, followed by a low tide approximately six hours later.

(2) Effect on shipping; establishing a port (tide-table showing daily changes for a month).

(c) Eclipses (1) of the sun; (2) of the moon.
Make diagrams to show conditions for an eclipse of the moon and of the sun.

**(d) Some false beliefs about the moon's influence.

(1) By observing the moon, one can fortell weather.

(2) Weather is influenced by the changes of the moon's phases.

(3) Weather depends on the direction in which the horns of the new moon point.

(4) If there is a bright star near the moon, stormy weather will follow.

(5) Seeds will grow better if planted during certain phases of the moon.

(6) Bacon will shrivel in the pan if the hog was killed at the full of the moon.

*d. Comets and meteors.

1. Have always excited wonder and fear and have led to many superstitions.

2. Nucleus, coma, and long tail; composition of each part.

3. Orbits of comets; tail always away from the sun. Halley's comet—period of 75 years (1910-1985).

4. "Shooting stars"—their cause.

(a) When a "shooting star" enters our atmosphere it glows because of air friction.

(b) Those that reach the ground are called meteorites.

*e. Planets of the solar system.

1. Names, sizes, composition, and distances from the sun.

   NOTE.—A brief discussion about anything of interest relating to these planets, as:—

   (a) Possibility of life on Mars; canals and colour.
   (b) Rings of Saturn.
   (c) Discovery of Pluto.
   (d) Venus, the morning "star"; the evening "star."
   (e) How the planets shine.
   (f) The year, also the day, on each of the planets.

2. Theories of origin of planets; Nebular Theory; Planitesimal Theory.

*f. Balance of forces.

1. Story of Galileo.
   (a) The sun as the center of the universe.
   (b) Planets are not stars.
   (c) Law of falling bodies; centrifugal and centripetal forces.
2. Story of Newton's work; the universal law of gravitation.

g. A few of the best-known stars and constellations.

1. Finding our position on the earth's surface.
   (a) The north star—a guiding beacon from times of ancient civilizations. Angle of the north star above the horizon (used by surveyors).
   (b) Angle of the sun above the horizon at exact noon; sea captain and sextant; use of the nautical almanac.
2. Review longitude; method of finding longitude by use of a ship's chronometer; use of radio.
3. Locate the following: Capella or Goat Star in constellation Auriga or Water-carrier; Sirius; the Big Dipper; the Little Dipper; Pegasus or Winged Horse; Orion the Hunter; Canis Major or Great Dog; Canis Minor or Little Dog; Cassiopeia; Gemini or Heavenly Twins, etc.; myths relating to the common constellations.
4. Distances from the earth in light-years; nature of a light-year.
5. Size, brightness, and colour (a general statement).
6. Movement.
   (a) Show that apparent movement is due to rotation of earth.
   (b) Show that there is real movement. The Big Dipper and the value of the north star as a permanent mark. (Polaris or the pole star is very near the celestial north pole.)
7. Each star a sun, the center of a solar system.
8. The Milky Way.
9. Galaxies and nebulae.

*h. Ancient beliefs and myths concerning heavenly bodies.

1. Sun worship.
   (a) Stone columns at Carnac, France, where a priest of the New Stone Age greeted the rising sun.
   (b) Ancient druid priests greeted the first day of spring. Temples were built to mark that one day; the return of the sun; Inca and Maya temples of the sun.
2. The early magician was the scientist of the tribe.
   (a) Relation of storms, lightning, thunder, etc., to proper offering to gods.
   (b) Names given to him: medicine man, soothsayer, astrologer, or witch doctor.
   (c) As his power increased, the wise man was asked more and more diffiicult questions:
      (1) What is the sun?
      (2) Why do we have day and night?
      (3) Where does the rain come from?
      (4) What causes heat and cold?
   (d) Not knowing the answers, he invented explanations. Read about some of the explanations.
3. Greek gods.—Apollo, the god of the sun; Poseidon, the god of the sea; Zeus, the all-powerful father of gods and men, and many others.
4. The Greek world—a great plain, bounded on the west by the Atlantic, and on the east by a sea which lay somewhere beyond India.
5. Roman gods.
   (a) Deification of the powers of nature.
   (b) Greek influence—Jupiter, ruler of gods and men; Mars; Vesta; Minerva; Venus.
6. The Roman world.
   (a) The geographer Strabo.
      (1) The earth a sphere composed of a great land mass, and a great ocean.
      (2) The earth is stretched from the Atlantic to a sea beyond India.
   (b) The geographer Ptolemy.
      (1) The earth the center of the solar system.
      (2) Information given in his books was taken in preference to actual observations.
7. Astrology. Beliefs which Science does not accept.
   (a) The fate and fortune of people depends upon the arrangement of the stars upon the day of birth.
   (b) There are other important days in their lives.
   (c) The future can be foretold by "reading" the stars.
8. The use of scientific methods has changed beliefs of long standing.
   (a) Man has gained increasing knowledge of the forces in his environment.

(b) Through this knowledge he has invented means by which he either uses these forces, or adjusts himself to them.

(c) This knowledge has caused new thinking on the part of other men (not inventors).

OBSERVATIONAL WORK

A.—Fall.

1. Familiar trees; how they prepare for winter.
2. Seeds and seed dispersal.
3. Root propagation; bulb potting.
4. Stem cuttings; geraniums and snap dragons.
5. Greenwood cuttings; roses.
6. Weathering of rocks; agents of weathering.
7. Planets.
8. The equinox.
9. Sky colours; sunsets, rainbows, dusty skies, blue sky.
10. Conservation as applied to soil fertility, forests, seeds, crops.

B.—Winter.

1. Temperature records; the thermometer.
2. Phases of the moon.
3. Constellations of the winter sky.
4. Frost bites; freezing ears, noses, cheeks, fingers; an explanation.
5. Rapid and slow freezing vegetables; effect of thawing.
6. Freezing mixtures; effect of salt in solution on the freezing point of water; applications; radiators in automobiles.
7. Winter clothing; principles followed.
8. How schools and houses are heated; insulation.
9. Destructiveness of rabbits, deer, elk, etc., with respect to shrubs and trees.
10. Winter transportation.

C.—Spring.

1. Arbor Day; tree planting.
2. Tree study; branching, budding, leaves, flowers.
3. Seed planting.
4. Care of potted bulbs.
5. The hot bed and the cold frame.
6. Erosion of soil by spring floods; soil drifting.
7. Winter-killing of plant life.
8. Trip to a commercial greenhouse.
9. Methods of tilling the soil; gardens, field-crops, root-crops.
10. Ways in which plants are adapted to meet (a) competition; (b) Unfavourable climatic conditions; (c) animal enemies.

GRADE IX

1.—ENVIRONMENT.

A.—Chief Factors or Conditions of the Environment (Simple Survey).

1. Nature of environment (animate and inanimate).
2. Relation of air, water, heat, light, and soil to living.
3. Some ways in which environment affects living things.
4. Man's natural and artificial environment.

B.—Environment as a Source of Knowledge (Simple Survey).

1. Use of senses in obtaining knowledge.
2. What is science?
   Relation between—
   (a) Knowledge and superstition.
   (b) Knowledge and experiment.
   (c) Experiment and science.

C.—Meaning and Importance of an Experiment—The Scientific Method in the Laboratory and in Daily Life.

1. Factors involved, illustrated by a simple demonstration:
   (a) Stating **problem.**
   (b) Securing **material.**
   (c) Use of material to obtain information that will be of use in solving problem. **(Method.)**
   (d) **Observation** of results.
   (e) **Conclusions** drawn.
   (f) **Practical application** of conclusions to the solution of new problems.
2. Repeated reference to the value and use of an experiment in developing scientific method. Distinguish theories, principles, laws. "The pathway to science is paved with discarded theories."
3. The scientific method demands an open mind.
4. Science heroes who used the scientific method.
   (a) Read about the work of *three* scientists. Choose any three of the following: Galileo, Torricelli, Pasteur, Burbank, Saunders, Mendel, Darwin, Curie, Archimedes, Franklin, Maxwell.
   (b) How one may become scientific in his attitude and work.

NOTE.—*Sections A, B and C are included in the course for Grades VII and VIII, and will thus become review work in Grade IX.*

D.—Nature of Environment.

1. Matter.
   (a) Kinds: (1) inorganic (rock, soil—sand, clay, and silt only, water); (2) organic (humus, plants, animals).

(b) Properties of matter; inertia, weight, forms, occupies space.

(c) Demonstrations to show (1) that organic matter will burn; (2) two general properties and two special properties of matter.

2. Energy.

(a) Kinds: kinetic and potential.

(b) Forms: heat, mechanical, light, electrical, chemical.

(c) Sources and general uses of energy to man in work of water, air, heat.

E.—Meaning and Importance of Work.

1. What work is: definition, measurement, simple problems
2. Common resistance to work: friction, weight and inertia; overcoming friction by lubrication, roller bearings; sliding friction; perpetual motion machines.
3. Aids to work.

(a) The levers and pulleys; the pulley as an application of the lever principle.

(1) Demonstration—the principles and mechanical advantages of levers and pulleys.

(2) Illustrations of levers and pulleys in common utensils and equipment around the home; can opener, window sash, clothes-line, etc.

(b) The wheel and axle: application of lever principle; uses on farm and around the home; windlass, meat grinder, wringer.

(c) The inclined plane: demonstration of mechanical advantage; stairway, loading platform.

(d) The screw and wedge as applications of the inclined plane; car jack, sealer top, nut and bolt, axe, knife.

4. Efficiency of machines: energy input and output.

II.—AIR AND ITS WORK

A.—Atmospheric Pressure.

1. Demonstration: air has weight and exerts pressure because of this weight.
2. Structure, principle and uses of barometer (aneriod and mercurial) and barograph.

B.—Some Common Uses of Air.

1. Use of atmospheric pressure in lift pump, siphon, medicine dropper, vacuum cleaner, air pump, balloon, airplane and parachute, sealing fruit-jars, breathing.
2. Physical properties of gases: weight, space, compressibility, expansibility.

(a) Uses of compressed air.

(b) Study of force air-pump; for example, as used in service stations. Discussion of its application in the following: operation of sprayers, sand blast, inflation of tires,

grease gun, automobile hoist, tipping grain box at elevators, caissons (dangers), submarine, air drills, floating sunken ships.

(c) Force water-pump: detailed study with diagrams and demonstration.

C.—Uses of Air to Carry Sound.

1. Demonstration of production of sound by vibration.
2. Demonstration that sound requires a material medium.
3. How sound travels and how it varies in intensity, rate of speed and pitch.

D.—Use of Oxygen in the Air in Oxidation.

1. Presence and proportion of oxygen (experiment).
2. Rapid oxidation.
3. Slow oxidation: (See Grade VIII programme.)
   (a) Rusting of iron is oxidation (demonstration).
   (b) Dangers of slow oxidation and their prevention.
4. Results of oxidation.
   (a) Products.
   (b) Indestructibility of matter. Statement of general law, which is to be observed in other situations.

E.—Use of Air to Living Things.

1. Oxidation in living things.
   (a) Demonstration to show that animals give off heat and oxides. (Emphasize the fact that oxidation goes on in every cell of the body.)
   (b) Living things compared to engines.
   (c) Natural respiration.
      (1) Breathing mechanism in the human body. Demonstrate the action of the diaphragm.
      (2) General adaptations for breathing (or using air) in insects, fish, frogs; lenticels and stomata in plants.
      (3) Air, oxidation, energy and work in their relation to tissues of the human body.
      (4) Methods of breathing (mechanical action involved).

III.—WATER AND ITS WORK

A.—Water Pressure.

1. How used and controlled; artesian wells, standpipes, gravity water systems.
2. Demonstration to show that water exerts a measurable pressure upon surfaces; submerged surfaces.

B.—How Water is Used in the Home.

1. Review Theme I (Water), Unit B, of the course for Grades VII and VIII, Section A.

2. Demonstration of circulation of water by convection due to unequal heating. (Make a detailed study of a water heating-system.)
3. Hot-water heater and how it works.

C.—Ice.

1. Importance in modern home.
2. Storage of ice.
3. How the ice-box works.
4. Electric refrigeration—principles.
5. Dry ice (solid carbon-dioxide).

D.—Water Supply in Community.

1. Water sources. Review Theme I (Water), Unit C, of the course for Grades VII and VIII, Section A.
   (a) Impurities and control (in a large city).
   (b) Types of water-systems (gravity and force—in a town or city).
   (c) Dams: construction and principles involved. (How a dam increases water pressure.)
2. Casual relations between enrgy of sun and evaporation, molecular explanation, rainfall, waterfall, and passage of water through mains to house faucet. Chart study: "Water, from Sun to Faucet."

IV.—HEAT AND ITS WORK

A.—Sources of Heat.

1. The sun.—Concentration of heat dependent upon angle of sun's rays.
2. Chemical action—oxidation of fuels.
3. Friction.
4. Compression.
5. Percussion.
6. Electrical energy.

B.—Physical Effects of Heat Upon Matter.

1. Forms of matter: solid, liquid, gas (experiments).
2. Experiments to show expansion of solids due to heat.
3. Experiments to show expansion of liquids due to heat.
4. Experiments to show expansion of gases due to heat.
5. Applications of expansion studies in everyday life.
6. Study of thermometer scales (Centigrade and Fahrenheit); changing from one scale to another.

C.—Uses of Heat in Warming the Home.

1. Early methods: open fire, fireplace, common stove; furnace ventilation; a time-line study.
   (a) Construction, principles, care and control of stove.

(b) Application of principle to heating apparatus in the home; hot air; hot water; steam. (Note the importance of humidification.)

(c) Demonstration of principle of electrical resistance.

(d) Uses of electric heat in home (heater, toaster, electric iron, range).

2. Three types of heat distribution.

(a) Conduction.

(b) Radiation.

(c) Convection.

Demonstration of each type, and practical applications.

3. Conservation of heat in home: in building a house—storm doors and windows; in fireless cooker; in thermos bottles.

V.—LIGHT, ITS WORK, USE AND CONTROL

A.—The Sun as the Source of Natural Light.

Transmission of sunlight (demonstration to show that light travels in straight lines); pin-hole camera.

B.—Artificial Light—Principle of Glowing—Incandescence.

1. Sources (discussion of evolution of artificial lighting). Time-line.
2. Production of light by a burning candle (showing parts of flame and products given off).
3. Construction and principle of oil lamp. (Relate to modern furnace.)
4. Types of artificial illumination.

(a) Early types (sperm-oil dip, lamp, fish-tail gas jet).

(b) Modern types (gas mantle, jet, incandescent lamp, carbon and tungsten filaments).

5. Relation to eyes (need for adequate light to prevent eye strain); compare eye with camera.
6. Methods of lighting (direct, indirect or diffused).

VI.—STUDY OF INDUSTRY

A.—Sources of Energy in Industry.

1. Heat, water, electricity and direct use of sun's rays.
2. Electrical energy.

(a) Magnets and their uses; permanent and electric.

(b) How generated—elementary study of voltaic cell and principle of dynamo.

(1) Applications (with elementary explanations): (a) doorbell, (b) telegraph without relay, (c) telephone without transformer, (d) radio—crystal set, principle of vacuum tube, (e) electroplating omitting ionic explanation based on chemical formulae.

(2) Control of electricity in home: (a) switches, (b) fuses—importance.

(3) Measurement (reading metres only).

(4) Motor (changes electrical energy into energy of mechanical motion); as in street cars, automobiles, hair clippers, feed choppers, vacuum cleaners, mix-masters, etc.

B.—Relation of Heat to Power.

1. Steam engine.
   (a) Materials needed: fuels, boiler, water, engine mechanism.
   (b) Construction and method of operation of steam engine.
   (c) Change of energy forms; Law of Conservation of Energy.
2. Gas engine.
   (a) Materials needed: fuel, ignition, vapour, expansion, power; relation between each.
   (b) Construction and method of operation of gas engine.
   (c) Change of energy forms in the automobile.
3. Similar study for the Diesel engine as in 1 and 2 above.

C.—Relation of Water to Power.

1. Hydro-electric power:
   Dams: location, construction, use.
2. Devices for using water power.
   (a) Water wheels of early days.
   (b) Turbines and Pelton motors.
   (c) Flumes (wood and iron).
   (d) Dynamo and wires for generating and transmitting.
4. Conservation of energy applied.

D.—Special Investigation of Uses of Energy in Typical Industry.

VII.—WORK OF SOLAR ENERGY AND ITS RELATION TO LIVING THINGS

A.—The Sun as Source of all Energy.

1. Direct Source.
   (a) Heat effects upon air, water and metals, and molecular explanation.
   (b) Chemical action of sun's energy (photography and photosynthesis).
   (c) Demonstration of chemical action of sunlight by means of blueprint paper.
2. Indirect Source.
   (a) Storage of energy in falling water. (Chart study—trace to sun).
   (b) Storage of energy in fuels and foods. (Chart study—trace to sun).

B.—The Living Plant.

Starch made in green leaves in the presence of sunlight.

NOTE.—Review Theme II (Plant Life), Unit B, of the course for Grades VII and VIII, Section B, with reference to parts and functions of the green plant; its essential structure; its special structures (root hairs, stem, leaves); osmosis, photosynthesis.

VIII.—SAFEGUARDING AND IMPROVING LIFE OF INDIVIDUAL AND COMMUNITY

A.—Micro-organisms; Bacteria; Yeasts; Molds.

1. Form—tiny living organisms so small that they can be detected only by microscope; structure of bacteria, yeasts, and molds under microscope.
2. Size—various.
3. Shape—various (spherical, rod-like, spiral).
4. Structure—definite (cell wall, protoplasm, nuclear material).
5. Propagation by simple fission.
6. Where found (in air, water, food, ground, as parasites on plants).
7. Conditions favourable in their growth (food, moisture, warmth, absence of strong light).
8. Growth of yeast under very warm, moderate and cold temperatures.

B.—Micro-organisms in Relation to Man and his Environment.

As beneficial agents:

(a) In manufacture (butter, cheese, linen, leather).

(b) In making bread (through action of yeast).
NOTE.—Yeast causes fermentation, resulting in the production of alcohol and carbon-dioxide.

(c) In increasing soil fertility (by production of nitrates), as in decomposition of dead organic matter. Study of the Nitrogen Cycle.

SOME SUGGESTED ACTIVITIES

(Grades VII-VII-IX grouped.)

A.—Fall Observational Work.

1. Birds, insects, toads.
2. Seeds and seed dispersal.
3. Seed planting.
4. Leaf cuttings.
5. Plant diseases.
6. Weeds
7. Tree study.
8. Weather forecasting.

9. Conservation as applied to insects, animals, foods, and health.

B.—Spring Observational Work.

1. Conservation of natural resources.
2. Elimination of waste in home, school, city.
3. Bird life.
4. Wild flowers.
5. Preparation of soil.
6. Budding of plants.

C.—Environment.

1. A list of different kinds of work done in home, with kind of energy used in each case.
2. A list of different ways in which friction interferes with work and how it may be useful in doing work.
3. Examples of screw, pulley, wheel and axle, and wedger in everyday work of the community.
4. A study of a compound machine in the home (sewing machine, wringer, bicycle).

D.—Air and its Work.

1. Preparation of oxygen.
2. Preparation of carbon dioxide.
3. Why water rises in pump.
4. Construction of a lift pump.
5. Why milk can be "sucked" through a straw.
6. How an aquarium can be emptied with a siphon.
7. A list of ten physical and three chemical changes which take place about us.
8. A list of examples of slow oxidation.
9. Best methods of preventing slow oxidation.
10. How to increase one's lung capacity.
11. How insects, birds and frogs breathe.
12. A report upon various methods employed to remove dust from presence of workers in mills and factories.

E.—Water and its Work.

1. Apparatus to prove that water exerts pressure.
2. Apparatus to show that water pressure varies at different depths.
3. Solutions and tests (hard and soft water only).
4. A model hot-water boiler to show how it works.
5. Methods of conserving and reclaiming forest lands.

F.—Heat and its Work.

1. Some sources of heat and their uses to man.
2. A model hot-water system and demonstration.
3. The method of heat distribution in your home, school and church.

ART

INTRODUCTORY STATEMENT

These courses are planned to give the student an introduction to and to provide a survey of the broad fields of subject matter in art education. They are exploratory rather than exhaustive, giving the pupil some idea of the place art can fill in the life of the average individual. They are for all students, many of whom will not elect art as a vocation, but will be called upon to make choices between the beautiful and the commonplace. They are cultural in that they give the pupil a greater measure of appreciation of the beautiful in art, whether in the field of fine or industrial arts.

These courses are broad rather than intensive. The exercises include drawing and design, without which no course in art appreciation is possible. They are planned, not primarily to develop artistic ability, but rather to give opportunity for thinking, planning, judging, and deciding in terms of form and colour in life situations. The completed exercises should enable instructors to discover any students who have special ability in art, and along what lines. Such students should be encouraged to elect one or more of the special art courses offered in high schools, or to proceed at once to an art school. For those not specially talented the course provides a cultural training and a possible opportunity to develop leisure time interests, which are among the main aims of education, today. The creation of these interests may be a means of developing such hobbies as amateur photography, collecting prints and other works of art, drafting, stage costume designing, horticulture and gardening, etc. Further objectives which merit careful consideration are the vocational and social objectives. The former aims to discover, conserve and direct the talent of specially gifted pupils so that it may be of value to industry; that is, to develop a realization of the significance of art in industry, a knowledge of the art possibilities of such raw materials as stone, clay, metal, wood, glass and textiles, and an appreciation of the work of the designer, the draftsman and the commercial artist. The latter aims to develop a knowledge and understanding of art quality that will function in the everyday life of the pupils, so that they react to civic beauty, to beauty in home and surroundings, and to beauty in personal adornment. It may be emphasized that the aim of the art course is essentially to provide the children with the knowledge and skills which will be of value to them as citizens and as home-makers. (See General Statement, Introduction to the Elementary School Course, p. 195.

The General Introduction to the Elementary School Art Course states that the following factors should be given due emphasis in a well balanced curriculum:

(a) *The Knowledge Factor,* which requires that the child be armed with knowledge which will enable him to make wise choices and recognize "fitness to purpose."

(b) *The Appreciation Factor,* which provides an understanding of the principles of art structure, enabling the pupil to enjoy the expression of beauty in nature and in art.

(c) *The Creative Factor,* which requires that the pupil attempt to provide beauty in some form. Pupils here, as in the elementary school grades, should be encouraged to create freely. "Such experience enriches and expands the knowing and the enjoying aspects of art."

Whereas the creative factor has been given emphasis in the elementary grades, the appreciation and knowledge factors should receive more attention in the Intermediate School. There should still be due emphasis, however, upon creative experimentation.

2.—GENERAL CONTENT OF THE COURSES

These art courses, generally, are exploratory in nature. They provide instruction in the *elements* and *principles* of art—Drawing and Painting, Drafting, Design, Lettering and Colour—and make provision for the development of greater ability to appreciate beauty.

From the aesthetic point of view, the *Art Elements* are line and form, light and dark, colour and texture. These elements are best observed in the classic examples of the art of the past, or in those of outstanding merit in the present. An examination of these will reveal some elementary principles in their organization. To the pupil, these principles form the basis of judgment in the criticism of his own creations or those of others.

Design or Art Structure is fundamentally important. It is essential that young pupils gradually develop a feeling for design. Broadly speaking, the principles of design or art structure are Proportion, Dominance or Emphasis, Balance, Rhythm, Harmony and Unity. Each grade should review the principles previously taken. It is well, therefore, in connection with the exercises in design, that both the pupil and teacher secure as much good illustrative material as possible. This should include examples of illustrations of architecture, sculpture, drawing, painting, historic ornament, textile designs, furniture and craftwork generally, as stated at the beginning of each of the courses.

Lettering is an important element of an art course. Good lettering should be legible, and fitted to its purpose. This requires that it be well designed, and well rendered. Lettering may exist by itself, or it may be associated with decorative manner as in a book-jacket, poster or other similar forms of subject matter. Avoid eccentricity in the letter forms.

The use of lettering pens of various types is strongly recommended. The uniform line type of letter in the first year, and the Roman type for Grade IX are recommended. Only such variations from the standard type as will best fit the purpose for which lettering is used should be permitted.

Drawing is closely allied with design. Drawing may be taught from the literal point of view, or with the idea of expressing the significant qualities of an object. Hence in teaching the drawing of an object let it be sensed as one which has particular form and significance, and attempt to express this in appropriate line.

The "skill" aspect of drawing is very important. To be able to draw well requires a great amount of intelligent practice. If the pupil is taught to observe the significant features of an object, there will be less difficulty in drawing the object from memory. This technique of drawing should be encouraged.

To encourage careful observation, "snap-shot" or "short exposure drawing" should be practised. The object is viewed for a short period, attention being directed, through questioning and discussion, to the broad outlines and masses. The object is then sketched rapidly with broad vigorous strokes while it is *not in view*. A short period of re-examination of the object allows corrections to be made, and the eraser may be used here for the first time. A further short period of drawing with the object in sight permits the addition of details. The aim of this type of work is to encourage keen, intelligent, orderly observation—knowledge of what to look for first, second and third, and the ability to express this in bold vigorous strokes.

Imaginative or creative drawing should be encouraged. Opportunities must be provided for work in illustration in correlation with the other subjects, or from purely personal experience.

A type of work of interest to some students, mostly the older boys, is the more mechanical aspect of drawing. For these, provision should be made by encouraging them to experiment in the field of mechanical drawing. Working drawings, plans carefully drawn to scale, etc., would offer outlets for their interests in these directions.

In the course which follows provision is made under some of the topics for work of the kind indicated above. Those pupils who manifest an interest in this type of work may be allowed to substitute it for the more creative aspects of the course.

Colour is now an important factor in all art teaching. This topic is introduced under the following sub-headings: (a) Characteristic of colour; (b) Colour grouping; (c) Colour harmony; and (d) Colour in everyday life. The first topic deals with colour characteristics—hue, value and intensity, warm and cool colours, advancing and receding colours. The second, "colour groupings," deals with a study of different colours and their effect upon each other when combined in groups. These groups are generally known as the monochromatic grouping, complementary grouping, adjacent or analogous grouping. The third, "colour harmony," aims to show how the various colour groupings may be adjusted to produce a harmony. All these topics lead to the application of colour in everyday life. Colour in relation to home-art, to dress, to industrial arts should be considered.

THE COURSE IN ART FOR EITHER GRADE VII OR GRADE VIII

Introduction.

The aim in this year is to explore possible fields for the expansion of art interests, with the *vocational* and *social objectives* increasingly in mind. While in school pupils have neither the time nor the keen desire to undertake intensively any of the suggested activities, yet if the problem of the artist in industry is presented in

an interesting way, some knowledge of the skills required by a successful worker may be gained, and a keener appreciation of the beauty of manufactured articles may be developed. Short discussions should be undertaken on such topics as "Arts and Crafts in the Middle Ages." "The contribution which Art makes to the beauty of such articles as automobiles, engines, the place of exact draftsmanship in manufacture, costumes, etc." The art quality in posters, illustrative advertisements, illustrated catalogues, etc., should be examined.

Two branches of *vocational art* should be given special consideration, namely; that of the commercial artist, who designs chiefly for reproduction in quantity (Printing Arts) and that of the industrial artist, who designs articles for use in everday life, as furniture, automobile bodies, rugs, textiles, etc.

Some outstanding qualities necessary for success in these fields as a vocational artist are the following: (1) Imagination and creative ability; (2) Ability to draw and design well; (3) A knowledge of the use to which an article is to be put; (4) Appreciation of the suitability of the design to the material.

Scrap-book Preparation.

Each pupil should collect and mount illustrations under suitable headings, on mounts of uniform size. If the mounts are the same size as the paper used for the drawing exercises, the work of the year, including the collection of illustrations, may be made into a booklet as follows:

Arrange the sheets of drawing exercises, notes, and the illustrations, or as many of them as are desired, in proper order. Make two cardboard covers, with a hinge about one inch from the side, in a manner similar to a loose-leaf or ring-bound book. Punch five holes through the back as if for the insertion of rings. Rings may be used, or if a stronger binding is desired, lace tape through the holes and around the back of the book in the manner called "Japanese binding." The book will be solid and strong, and the leaves not likely to tear out when handled.

The cover may be made at any convenient period during the school year. It may be covered with heavy craft paper or wrapping paper, coarse linen or cotton, or any other suitable material desired by the pupil. The cover-design should be completed before the book is inserted. Pockets may be made inside each cover, if so desired.

Illustrative Material.

Pupils should collect and mount, as stated in the preceding paragraphs, good illustrations of the following objects:

(a) Snapshots or half-tone reproductions of landscapes, buildings, etc.

(b) Illustrations of figure compositions, of one, two or three figures.

(c) Illustrations of good page arrangement, of good lettering, particularly with a round-nib pen. Book-plates, monograms, etc.

(d) Examples of good colour; of black with one colour, of black with two colours; of one-colour harmonies, of related harmonies, of contrasting harmonies.

(e) Illustrations of many small articles found in the average home, as bowls, vases, rugs, etc.

(f) Illustrations of objects used in transportation—automobiles, aeroplanes, steamships, engines, etc.—with emphasis upon improvement in appearance during the past few years. Working drawings of manufactured objects. Plans to scale of buildings and grounds.

NOTE.—*This illustrative material is for discussion only. At no time should pupils be allowed to copy this material.* It should be classified and mounted as stated in the preceding paragraph.

OUTLINE OF THE COURSE FOR EITHER GRADE VII OR GRADE VIII

1.—DRAWING

The drawing in this grade should be largely illustrative. The teacher is referred to sections under "Drawing" in the Grade V and Grade VI course. Many of the forms there suggested may be re-drawn in this grade with more attention to good proportion, balance, and finish and accuracy of detail. The drawing may be linked, very effectively, with the Social Studies, Literature, Science and other work of this grade.

Things to Draw.

Costumed figures, animals, simple objects connected with the modes of living or transportation, objects in nature, or objects typical of Western life—the water tower, elevator, prairie, depot, country school house, etc. Those interested may make working drawings of any objects desired within their capacity.

(The above drawings may be effectively used as motifs for design patterns, border or surface.)

Illustration with attention to Proportion, Balance, Dominance and Subordination.

This will require some practice in figure drawing as a preparatory step. Arrange compositions to include figure or figures. Add suitable surroundings. The work in Social Studies, Literature, and Health, or seasonal sports and activities, will suggest interesting themes for illustration. Good balance in the colours used is an important feature in the exercise.

2.—COLOUR.

Characteristics of Colour, Colour Groupings, Colour Harmonics.

It is not the intention to segregate colour into one division. It is thought best that the teacher should review the fundamental and practical aspects of colour.

(1) Discuss such problems as:

(a) What is colour? Its source? What are the spectrum hues?

(b) What are colour pigments? What are primary and secondary hues? (The teacher should use a colour circle to explain colour theory. Charts of coloured paper are suggested.)

(c) Discuss the colour quality of "Value" using a neutral scale of five steps? What are the tints and shades of colours? How are they made?

(d) Discuss the colour quality of "Intensity." How are colour intensities made?

(e) Name the warm and cool colours. Why so called? (If the pupils are not familiar with colour mixing, opportunities should be given for mixing colours, for applying colour washes, and for matching colours.)

(2) Study the different colours and their effect on each other when combined in groups.

(a) Monochromatic, or "One-colour grouping."

(b) Complementary or "Contrast grouping."

(c) Adjacent or "Analogous grouping."

(3) These colour groups are not necessarily harmonious, unless adjusted properly. Generally one colour should be dominant. A small amount of brilliant colour balanced by a larger amount of a grayed or softened colour tends to produce harmony. Sometimes a harmony is brought about by adding a little of one colour to the other.

Colour experimentation should be carried out in connection with the work in designs. Pupils should be encouraged to work out a design in various colour schemes and colour values to see the possibilities of colour in relation to design. The laying on of flat washes of light tones for completing working drawings should be practised.

3.—DESIGN.

Principles of Proportion Balance. Dominance and Subordination.

A.—Arrange regular shapes within self-contained areas, with attention to proportion, dominance and subordination, balance.

Using cut-paper vase shapes or a tea-set (teapot, cream pitcher, sugar bowl, cup and saucer, etc.), work out pleasing compositions within a given area. Cut these to show various pleasing well-proportioned shapes. Arrange in groups of two or three within a given area, to illustrate good balance and proportion, dominance and subordination. Finish in black and white and gray; or black and white and one bright colour.

B.—Arrange irregular shapes, with attention to proportion, balance, dominance and subordination.

Arrange the elements of a single landscape composition, using cut-paper as follows:

(a) Compose a landscape in black, white and gray.

(b) Compose a landscape in black, white and one bright colour.

(c) Compose a landscape in black, white, gray and with two contrasting colours.

C.—Illustrative Design with attention to proportion and balance, dominance, and subordination.

This work will require some practice in figure drawing as a preparatory step. Using cut-paper shapes, arrange compositions to include a figure or figures. Add suitable surroundings. The work in Social Studies, Literature and Health, or seasonal sports and activities, will suggest suitable themes for illustrations. Good balance in the colours used is an important feature in the exercise. By the addition of cut-paper letters, effective posters or book-cover design will result.

(Encourage free experimentation here. Open-forum discussions on the results.)

D.—Commercial Design. Lettering with attention to proportion, balance, dominance and subordination.

(It is recommended that each pupil have experience in handling the round-nib pen. Easterbrook's Drawlet pen, or Hunt Pen Co.'s Speedball pens, or similar pens of any other make are recommended.)

Practice exercise making freehand vertical strokes, horizontal strokes, or curved strokes, using guide lines.

(1) Make a line-alphabet of capitals, small letters and figures and letter several words showing the following modification of letter shapes:

(a) An increase in the height of the letters.

(b) An increase in the width of the letters.

(c) An increase in the width of the vertical strokes.

(d) A narrowing of the straight letters and a widening of the round letters.

(e) A raising of the waist-line of the letters; a lowering of it.

(2) Design and letter greeting cards, place cards, tallies.

(3) Experiment with the introduction of pattern and colour within the letter as a variant from the solid stroke. Ideas for such patterns may be suggested by the theme of the advertisement for which the lettering is intended.

(4) Design monograms that may be used for sports costumes, school blazers, pennants, etc.

(5) Using capital letters, repeat such words as NON, BOB, MOON, etc., to fill a rectangle, letters and lines touching.

(a) Even spacing (every letter the same width).

(b) Open-Closed spacing (round letters wider).

In the above exercises try straight repeat and alternate repeat.

(6) Using straight lines, vertical, horizontal, oblique, or curved lines (regular or irregular), plan abstract borders or surface patterns. Endless possibilities for creative work are here.

(7) Make line capitals and small letters suitable for use on working drawings.

(In the preceding exercises interesting and tasteful use of colour will add materially to the effectiveness of the work.)

E.—Industrial Design.

1.Constructive Design. The industrial designer considers "the purpose of this article," "the nature of the material from which it is made," and "the problem of making it pleasing in appearance." Each of these aspects should be discussed and suitable illustrative material should be used.

Discuss also the question: "Is the artist today more important in industry than ever before?" Use suitable illustrative material—automobiles, aeroplanes, furniture, in the discussion.

(a) As an activity, have pupils collect illustrations of objects showing the evolutional changes or modifications and improvement in design to meet the needs of utility and beauty—"fitness to purpose." Examples—automobiles, aeroplanes, railroad trains, steamships, buildings, articles of furniture, electrical equipment, personal apparel, etc.

(b) Design a mural panel or a frieze to show the evolutional changes in transportation, in costume, in habitation. Different members may assist in each if so desired. Experiment with a panel or frieze in relief (salt and flour mixture.

(c) Have pupils design one article to illustrate the principles of balance, proportion, dominance and subordination, and to demonstrate "fitness to purpose." The materials used may be clay, papier-màchê, wood, cement, cloth, wool, or any others available. Encourage experimentation here and freedom of choices. Hold each individual responsible for the making of some one article—the taste of the boy and the girl to be considered in each case. There is opportunity here for the making of careful working drawings by those interested in this aspect of the work.

(d) To correlate with the work of literature or dramatics the designing of puppets and a puppet stage is a suggested activity. This offers ample scope for experimentation and creative work. Suggested media are soft wood, salt and flour mixture and wax finish. For a helpful book of directions see bibliography.

(e) To correlate with the music course the making and decorating of bamboo pipes for a pipe band is an activity which should prove interesting. The teacher is referred to the bibliography for helpful reference books on this work.

Decorative Design. The decorative designer considers *whether a decoration would improve the appearance of the article,* then *the kind of decoration which would be most appropriate,* and lastly, *the motif for the design which would be most suitable.* Using these as topics, examine the decorative qualities of articles of everyday household use. Consider the suitability of the decoration to the article. Encourage free critical discussion. Examine such articles as dishes, silverware, kitchen utensils, of ornaments such as flower vases, lampshades, cushions, upholstery, wall hanging or panel, etc.

(a) Select from the home any one article such as those mentioned above, and work out a decorative design which will illustrate suitability of decoration to the nature of the material, and to the purpose for which the article is to be used.

3. Appreciation. The following pictures are suggested for study. Picture Study need not be confined to these pictures only, or to one particular time, but may be carried on at opportune occasions throughout the year.

For study, secure coloured prints, either in miniature, or, better yet, of a size about 6 by 8 inches.

Select five pictures from group "A" and five from group "B".

Group "A"	Group "B"—Canadian Art
The Mill, by Ruisdael	West Wind, by Thompson
Avenue of Trees, by Hobbema	Prospector's Camp, by O'Brien
The Poplars, by Monet	Returning from Mass, by Robinson
Portrait of Mother, by Whistler	Woodland Interior, by Jeffreys
St. Genevieve, by Chavannes	Evening after Rain, by Watson
Woman Churning, by Millet	On the St. Lawrence, by Cullen.

GRADE IX.

Introduction.

As the final year in the Intermediate School will be the last for many pupils, the art course should have practical and social objectives in harmony with those of the other subjects. To this end it should consist of topics closely related to the life of the average citizen. While the merchant is interested in having his goods artistically and attractively displayed, and the manufacturer in producing articles attractively designed, the average citizen is concerned with his personal appearance and the beauty of home and surroundings. Therefore the purpose of this art course is to show the relationship of the art principles already studied to problems relating to costume, the home and environment, and to the community.

It is well for teachers to realize that a formal or academic treatment of the topics will defeat the whole purpose of the course. Art should be closely related, and in a practical manner, to the Social Studies and to the Drama. An informal approach could be through occasional discussion or open-forum periods in which such topics as the following, and others, may be considered:

1. The value of attractive buildings to a community (Civic need for Art).
2. The relationship of attractive buildings and surroundings to tourist traffic (Economic need).
3. The effect of attractive clothes and personal belongings upon our feelings of self respect, prestige, etc. (Personal or Social need.)
4. The effect of attractive surroundings upon standards of living and conduct. (Spiritual need.)

In the hands of an enthusiastic teacher, understanding of the relationship of art to everyday life can be made most interesting and beneficial to the individual and to the community as a whole.

The following quotation is from an article by Sibyl Browne in "Progressive Education," March, 1934:

"The new school stands for interactive growth between the child and surrounding life. It consequently demands that art for its boys and girls be more than an accomplishment, more than a motor overflow, more than a mere response to directions, or illustration of subject matter of other classes. It calls urgently for art both as a personally enriching experiences and as a means of active contact with the developing social fabric. But Art as a vitalizing force within the individual cannot be separated from Art as a link with society, for fuller personal development comes only with articulation *with* the environment.

"If the new school really wants to bring functional development, it must seek such ways of weaving the staunch and glorious threads of art into the fabric of school life as will intensify and better living."

NOTE.—In planning the time-table for the Intermediate school. it is urged that principals should assign a much longer period than the customary 30 or 33 minutes—a double period twice per week would much better meet the need here.

Illustrative Material.

(See introduction to the course for the Intermediate School.)

Both the teacher and the pupils should make such collections of illustrative material as the following:

1. Illustrations of the bungalow type house, and of floor plan for these houses. Exterior views of churches, schools, banks and other public buildings in the locality; carefully planned views of front and side elevations.

2. Illustrations from magazines, paint companies, and other sources showing the effective use of colour for the exteriors of houses and other buildings; front and side elevations to scale.

3. Illustrations of well-arranged grounds, both rural and urban, showing arrangements of walks, trees, shrubs, hedges, flowers; ground plants to scale.

4. Illustrations of interiors, showing furnishings and colour schemes, types of furniture, the arrangement of furniture in the room.

5. Illustrations of any of the decorative manufactured objects found in the average home, to show interesting qualities in colour and design. Examples or illustrations of well designed home-craft work.

6. Colour prints (miniatures of pictures) which would be suitable for different rooms in the house.

7. Illustrations of costumes for boys and girls, of sports costumes, and of clothing accessories; historic costumes for work in Dramatics, Social Studies, etc.

8. Illustrations of good lettering on greeting cards, announcements, etc. Good examples of medieval and modern lettering, particularly that done with a broad-nib or manuscript pen; good examples of lettering suitable for working drawings.

9. Illustrations of borders and all-over patterns.

This material is to be used for the purposes of discussion and illustration only. In no instance should it be copied. It should be mounted on craft paper of the same size as drawing paper, and kept in the same portfolio as the regular drawings. Larger illustrations may be carefully mounted and kept on file in the school filing box.

1.—Principles of Design.

A study of the main principles of design in relation to objects in everyday surroundings.

(a) Review the principles stressed in the preceding grades—proportion, balance, dominance or emphasis, subordination. Use well chosen illustrations of costumes, furniture, house interiors, house exteriors, public buildings, etc., to exemplify the principles above mentioned.

(b) Pupils should examine illustrative material collected in this or in the preceding years, with reference to the above-named principles, and label any specific examples as good or bad, giving reasons for the decision.

(c) Introduce the principles of Repetition and Rhythm, Harmony and Unity, using the above materials, as well as the pictures on the course to exemplify them.

2.—Colour.

Colour in everday life.

(a) Review the simple colour theory of the preceding grades. Introduce split-complementary harmony.

(b) Discuss appropriate harmonies suitable for interior decoration, house painting, costume, garden planning, etc. Name colour harmonies found in your illustrative material.

(c) Consider warm and cool colours, advancing and receding colours.

List for reference suitable colour schemes for a living-room, a dining-room, a kitchen or a bedroom with specific reference to the direction in which the room faces—north or south, etc. List pleasing colour schemes for home exteriors (house, trim, and roof). List pleasing colour combinations for colour ensembles. List pleasing colour combinations for completing working drawings.

3.—Lettering.

The everyday use of lettering.

Collect and study good examples of manuscript writing, of announcements, bulletins, posters, etc.

It is well to encourage pupils to develop a good *vertical* style of lettering, which is individual in character without being extreme.

There should be a definite carry-over into the lettering needs of all subjects, while the school activities should provide steady motivation.

Activities.

The activities suggested below have been planned to provide opportunities for the practical application of the principles outlined above and to demonstrate the close relationship existing among the various types of art experience—drawing, drafting, design, lettering, colour, etc. Pupils should be encouraged to experiment and to introduce into their work the creative element. The development of their own ideas is the desired end.

The number of problems completed during the year is left to the teacher's discretion, but it is expected that pupils will have experience in the following fields of art expression:

(a) Drawing—representative, memory, imaginative.
(b) Design—structural and decorative.
(c) Composition.
(d) Drafting or mechanical drawing.
(e) Lettering.
(f) Colour.
(g) Craftwork.
(h) Appreciation.

A.—Costume.

(a) Consideration of the use of patterned material in relation to costume and the figure. The suitable use of stripes, plaids, flowered and plain material, etc., for different types of figures—tall and slender, short and stout, etc.

(b) Colour in relation to costume. The use of bright and grayed colours. Relation of colour to the type and personality (complexion, hair, eyes, etc.).

Suggested Activities.

(c) Consideration of *line* in relation to the figure.

(a) Simple figure drawing as in Division II of the Elementary School with emphasis upon proportion and action.

(b) Planning a costume for some particular purpose, a play, a pageant, a carnival, etc. Social Studies and Dramatics provide motivation.

(c) Planning and making a poster or announcement for a fashion display, a pageant, a play, a carnival. This will include design and lettering. It will relate closely to the work in Social Studies and Dramatics. Lettering for mechanical drawings—plans, sketches, etc.

(d) Designing a costume for a sports occasion, hockey, skiing, basketball, etc.; relation here to health.

(e) Making all-over patterns from abstract designs, figures, animals, or other objects suitable for costume materials. (Potato printing is suggested.)

NOTE.—In every case the finished design should be subject to critical examination by the class in a short open-forum period. Any accepted designs may be worked out in appropriate material: e.g., dresses may be made for use in plays and pageants being presented by the class in Dramatics.

B.—House and Grounds.

Discuss such questions as the following:

(a) Is it financially and socially worth while to have pleasing home surroundings?

(b) Do attractive homes and grounds appeal to the tourist—yourself when travelling? Why?

(c) What is there about some houses that makes them more pleasing (attractive) than others? Can you express this "something" in terms of the principles (laws) of design?

(d) Criticise the planning of your own town or village and say how improvement might be effected. (Open-forum debate.)

(e) Consider the improvement of your school house or church in the light of the conclusions you have reached. Make a quick sketch to illustrate your ideas. (Open-forum debate.)

Consideration of plans drawn up by house and town planning commissions might help in this section.

Suggested Problems.

(a) Draw a lot or area in any convenient scale, having in mind a local situation, urban or rural. Show on this plan the location of the buildings.

Plan the lot or area to the best advantage, showing the location of the garden, grass plots, walks, shrubbery, fences, etc. Colour with wash and add necessary legends neatly in capital letters.

Criticise the work from time to time on the basis of the principles of design studied. Reconstruct where necessary. In the above, consider the direction in which the house faces, the proper location of barns, garages and other buildings. Make careful scale drawings and plans if desired.

(Many popular magazines feature excellent illustrative articles on this subject.)

(b) Make a floor plan of the house to meet the particular requirements of the family concerned. Use squared section-paper. Discuss the size, placing and arrangement of the various rooms and passages, giving ample opportunity for exchange of views and for improvement in designs. Re-draw these carefully to scale if desired.

(c) Make quick sketches to show the appearance of the front or side view (or both) of the house. The placing of trees and shrubbery should be shown. Consider the sketches to see that the principles of balance and proportion have been kept in mind.

(d) Discuss and experiment with colour schemes for exteriors to obtain pleasing effects. Criticize tentative plans. Complete carefully a sketch in the chosen colour scheme.

NOTE.—Much of the above would be more beneficial if undertaken as a group exercise. For the more manual-minded pupils the

actual construction, to a suitable scale and on a suitable surface, of the house and grounds would be a valuable activity. An excellent opportunity for experimenting with a variety of materials is offered here. Careful working drawings may be made by any pupil interested in this phase of the work.

C.—The Home Interior.

Discuss the essential characteristics of the living room—restfulness, cheer and comfort. The well-planned living room furnishes an example of good composition and the tasteful use of colour. The consideration of the problem offers opportunities for class discussion. Discuss the principles of design in relation to the planning of the living room: (1) The centre of interest, which may be a fireplace, a dominating piece of furniture, a picture, or a group of windows; (2) the grouping of the articles of furniture to secure balance, harmony and unity. Make floor plan.

Discuss the choice and arrangement of pictures, their position, size, colour and framing.

Discuss the use of textiles—decorative quality, the restrained use of patterned materials in drapes and upholstery.

Discuss the use of colour to secure an atmosphere of restfulness and cheer with sufficient contrast to prevent monotony.

Suggested Problems.

(a) *Planning and making to scale a miniature living-room* The boys construct the room (of three-ply veneer or heavy cardboard), the girls the furnishings. Class discussions should be held, and various arrangements should be tried out following these discussions. Committees undertake various parts of the problem. There may be several sets of furnishings made showing different colour schemes. The class discuss the particular merits and demerits of each in order to select the most pleasing. Boys skilled in woodwork may be encouraged to make the furniture of wood and to upholster certain objects, e.g., chairs, etc.

(b) Select and frame, or mount on suitable mats, well-proportioned, pictures of suitable subjects, style and colour.

(c) Plan designs for various textile materials, using potato or linoleum blocks. Simple colour schemes suitable for the drapes may be worked out by experiment. The same design may be repeated in different colour arrangements and a choice be made. Use only abstract designs.

Any other room may be designed in the same way as an alternative or an additional problem—a bedroom for a boy or for a girl, a kitchen, etc. Experiment with colour schemes in flat tones. Motifs, if used, should be of the abstract type.

D.—Stage Craft.

In schools where Dramatics option is being offered, problems of stagecraft may be undertaken in a manner similar to the planning and furnishing of the house in the exercise above. Satisfactory progress will be achieved when the Art teacher is also the teacher of Dramatics, or where there is close co-operation between the two.

Suggested Problems.

(a) *The planning and making to scale of a miniature stage for a play that is being offered.*

The following topics should be discussed:

1. The type of setting in relation to the play to be presented—naturalistic or conventional (modernistic).

2. The style of costumes in relation to the play.

3. The use of colour in both scenery and costume as an aid to interpretation.

The making of the stage may be undertaken by a committee of boys. The designing of settings and costumes could be undertaken by other groups. The making and designing of necessary properties is another phase of the work.

The principles of design and of colour harmony should be exemplified in the finished model. When dramatic performances are being given, the stage setting and costumes should be as planned in the model.

E.—Craft Problems.

Pupils who have a liking for handicrafts may be encouraged to experiment with various media according to their preference.

(a) *Modelling.* Modelling on plaques or in-the-round. The making and decorating of small bowls and vases may be undertaken. Various media may be tried out, as clay, papier -màchè, salt and flour, paraffin, or paraffin with a little glycerine, in which a little wax crayon has been melted to give it colour, etc.

(b) To correlate with the music course, the making and decorating of bamboo pipes for a pipe band is an activity that should prove interesting. The teacher is referred to the bibliography for helpful reference books on this work.

(c) *Printing and Print Making* by wood-block, lino-cut; or by etching on celluloid, or on zinc; or the use of stencils may be experimented with.

(d) *Textile Decoration.* The designing of panels by the use of applique, or by using wax crayons set with a hot iron. Use monk's cloth or heavy linen, or other suitable material. Hooked rugs offer opportunities for interesting work.

F.—Lettering.

Since it is desirable that pupils should acquire facility in lettering, every opportunity should be seized to provide practice. This practice need not be confined to art activities, as other subjects, particularly science and the social studies, require careful lettering from time to time. It is suggested that the broad-nib or manuscript pen be used in this work.

Activities.

(a) A greeting card, to include outside design and greeting with suitably lettered verse within. The lettering should be well placed and compactly spaced. The potato block print, lino-cut (linoleum-cut) is an interesting medium with which to experiment.

(b) A book-plate may be an alternative problem.

(c) A portfolio cover.

G.—Drawing: Representative, Imaginative, Creative.

Those children who demonstrate special ability may be encouraged to develop this part of the course more fully than those less talented. All should be encouraged to attempt some creative or imaginative work, however, which may be developed out of their representative drawings.

Drawings should be large and freely rendered, the media used being crayon and coloured chalk, brush and ink, charcoal, etc. Easels and drawing boards, if available, should add to the ease with which the drawings could be rendered. (A plain flat board, or even heavy cardboard in the chalk rail, will serve as a good drawing board.)

Themes selected from the work in literature, science, social studies, dramatics and health can be experimented with. The motivation may be found in the desire to beautify the classroom, by the decoration of blackboards, wall spaces, etc., using the frieze, the panel, the mural, etc.

H.—Appreciation.

The following pictures are suggested for study. Picture Study need not be confined to these pictures only. For study, secure coloured prints in miniature, one for each pupil or better yet, prints 6″×8″.

Select five pictures from Group A and five from Group B.

Group A	Group B (Canadian)
Spring, or Morning at the Lake, by Corot	Jack Pine, by Thompson
Harp, or the Winds, by Martin	The Beaver Dam, by J. E. H. Macdonald
Christ among the Doctors, by Hoffman	North of Lake Superior, by Harris
Sistine Madonna, by Raphael	Coming of the White Man, by Reid
The Boat, by Monet	Beech Woods, by Beattie
The Blue Boy, by Gainsborough.	Horse Racing in Winter, by Gagnon.

Materials

1. Drawing paper, 9×12 or 12 18; heavy craft paper of similar
1. Drawing paper, 9 12 or 12×18; heavy craft paper of similar size for mounting illustrative material.
2. Square-section paper, 9×12, with ⅛ inch section.
3. Black, white and gray paper for cutting.
4. Coloured paper, assorted colours, for cutting.
5. Scissors, and paste or mucilage in bottles.
6. Materials for craft problems should be procured locally in most instances.
7. Colours, either tempera colours or water colours, brushes, one No. 7 and one No. 4.
8. India ink, HB pencil, ruler and a soft eraser.

9. Round-nib pens,—a small, medium and a large size, a penholder.
10. Broad-nib or manuscript pens, a small, a medium and a large width, penholders. (A brass reservoir attached to the pen-nib is serviceable.)
11. Colour prints; each pupil should have the miniature size at least, 3×4½ inches. A larger size, about 8×19, may be had for small classes.
12. For those interested in mechanical drawings, a small drawing board, T-square and triangles are necessary.

Bibliography

Reference Books:

1. Art Education in the Modern School—Nicholas-Mawhood-Trilling.
2. An Introduction to Art Education—Whitford.
3. National Society for the Study of Education—40th Yearbook.
4. Understanding the Arts—Gardner.
5. Colour and Design in the Decorative Arts—Burris-Meyer.
6. The New Art Education—Pearson.
7. Create Something—Payant.
8. The Art Class in Action—Horne.
9. Planning and Producing Posters—Lemos.
10. Blockprinting with Linoleum—Hunt Pen Co.
11. Puppetry—an Educational Adventure—T. Murphy.
12. The A.B.C. of Puppetry—Douglas.
13. Handbook of the Silk Screen Printing Process—Summer-Audrieth.
14. Canadian Landscape Painters—Robson.
15. P's and Q's—Tannahill.
16. The School Arts Magazine—Davis Press, Worcester.
17. Elements of Interior Decoration—Whiton.
18. Art Appreciation—Collins and Riley.

Magazines:

1. School Arts, Printer's Building, Worcester, Mass.
2. Junior Arts and Activities, 740 Rush St., Chicago.
3. Canadian Art—National Gallery.
4. House Beautiful.
5. Canadian Homes and Gardens.

Books for Broader Reading:

1. Art To-day—Faulkner-Ziegfeld-Hill.
2. Art Education Today—an Annual—Bureau of Publication, Teachers College.
3. Beautifying the Home and Grouds of Canada—Howitt.
4. Art in Everyday Life—H. and V. Goldstein.
5. Colour in Everyday Life—Weinberg (Dood, Mead & Co.)

6. More Colour for You—Welling (Practical School Supply Co.)
7. A Method for Creative Design—Best-Maugard.
8. How to Enjoy Pictures—Littlejohn (Macmillan Co.)
9. Historic Costume—Lester (Manual Art Press).
10. Flower Arrangement—Rockwell and Grayson (Macmillan Co.)
11. The Young Architects—Stanley Brown (Harper Bros.)
12. The Young Decorators—McClelland (Harper Bros.)

DRAMATICS

Dramatics is the creative enjoyment of literature through self-expression, and co-operative effort. Like all the arts, it has enjoyment as its primary purpose; like all the arts also, it demands patience, sincerity and hard work. More than any other art, it combines many activities, including acting, stage managing, lighting, costuming; and certainly it provides unlimited opportunity for group discipline and co-operation.

Owing to the large amount of work to be covered and the need for repeated practice in Voice and Body exercises, the course in Dramatics should be allotted no fewer than four periods per week.

The number of pupils in each Dramatics class should not exceed twenty. A greater enrolment than this would make rehearsals difficult, if not impossible. A class of fifteen pupils would be nearly ideal.

In the widely dispersed and often poorly equipped rural schools of the Province, teachers will have to use imagination and ingenuity in adapting the course to circumstances. Even in the cities, the lack of space and equipment will prove a challenge to their resourcefulness. Of necessity, therefore, the course in Dramatics is tentative and experimental. It is hoped that teachers will experiment freely, and in the larger centres especially, exercise their initiative and ingenuity as far as time and facilities will permit.

Teachers are asked to use this outline merely as a guide; not as a yardstick of achievement, not as a body of material that must be "covered" word by word, and line by line. *The course is not to consist of topics, either technical or informational, but of plays.* It must not become academic in any sense of the word, nor, on the other hand, must it degenerate into merely "putting on a play"—saying lines and strutting on the stage. The teacher may also cover the material in whatever order he wishes, allotting as much or as little time as he thinks best to each section of the work.

The material outlined below is for *all three intermediate grades.* No strict division of this material by grades is imposed. This allows teachers in smaller, and ungraded schools, to include all intermediate pupils in one class, if they so desire. Where separate classes are conducted for each grade, the work might be divided as follows:

Grade VII:

Voice and Diction.
Appreciation
Scrap-books.
Acting.
Producing Plays.

No formal work in Setting, Make-up, Costume, Lighting, and Direction should be attempted. Such work as this should only be incidental to the producing of plays. The greatest emphasis in this grade should be placed on Voice and Diction and Acting. But great care should be observed to prevent the work from narrowing into a mere course of Elocution.

Grade VIII:

The work of this grade should be made the same as that of Grade VII. Emphasis should be placed on Voice and Diction and Acting.

Grade IX:

In this grade there should be a choice of work from the entire Outline printed below, with emphasis still being placed on Voice, Diction and Action.

In none of the three intermediate grades should there be emphasis upon the formal teaching of stagecraft (setting, costume, lighting, make-up). It will be dealt with only in so far as it is needed for the production of a play.

A course in dramatics should be integrated with other material of the curriculum, serving as an enterprise centre for the teaching of as many things as possible. This will train the students in good use of the voice, by furnishing a freedom and range of expression that cannot be found within the limits of the work in Oral Language; and it will also bring students into contact with a large body of experience and of fact outside the usual categories of school curricula.

In addition to the list of plays recommended for production, teachers will find material for dramatization in the Literature and Social Studies of the Grade IX programme. This creative activity of dramatization by the class should not be overlooked. Examples of this type of work can be found in "Playmaking and Plays," by Merrill and Fleming.

Recommended Textbooks of Plays:

GRADES VII and VIII—"Eight New Plays for Boys and Girls," edited by John Bourne—Lovat Dickson.

GRADE IX—"Eight New One-Act Plays of 1933," edited by John Bourne—Lovat Dickson.
"Short Modern Plays," by Boas—Macmillan Co.

Since the course does not consist of formal lectures on such technical matters as stage decor, lighting, plot structure, etc., no other textbook has been prescribed for use by the students.

TEACHERS' REFERENCES:

"The Stage and the School," by Ommanney.
"The Players Handbook," by Selden—Crofts Publishing Co.
"Drama and Dramatics," by Fish—Macmillan Co.

Objectives.

1. To provide for the students opportunities for creative enjoyment.

2. To continue and develop the work in dramatization early begun in the elementary schools, with the purpose of stimulating the imagination, encouraging self-expression, developing self-assurance and character, and inculcating social and moral ideals.
3. To integrate Dramatics with other materials of the curriculum.
4. To impart an elementary knowledge of the arts of the theatre.
5. To provide as much opportunity as possible for the students to act, the technical details of this are being taught gradually and to some extent incidentally. This technique will include correct posture, voice production, enunciation, poise, self-control, stage grouping, stage mechanics.
6. To familiarize the students with some good plays, and to develop their ability to read and to view plays with critical appreciation.
7. To assist the pupils in developing grace of speech and grace of movement, through dramatic activity.
8. The correlation of the work in Dramatics with the other school subjects: General Science (stage lighting, sound effects and acoustics, special stage effects).

   Manual Arts(stage-craft and properties).

   Dress-making (historical and other costumes and their improvisation).

   Junior Business (typing manuscripts, business management of plays in production).
9. To develop a sense of leadership and responsibility by putting students in charge of direction, stage-management, stage-craft and committees on costuming, properties and business management.

It is not proposed to train finished actors, but rather to prepare each pupil to face life freed from handicaps of voice, diction and bearing; and to train him to think clearly, analyze carefully and use judgment and initiative in handling the problems that confront him.

The keynote of the course is sincerity. *Disapproval of artificiality cannot be too strong.*

OUTLINE OF COURSE

1.—Voice and Diction.

Voice:

1. Mechanism of the voice. Use a chart such as the one on Page 134 of "The Stage and the School" (Ommanney).
2. Correct breathing (central breathing) to get volume control, etc.
3. Quality, pitch, modulation (inflection).

Diction:

1. Improvement of enunciation and pronunciation.
2. Vocal sounds. Learn to distinguish more vowel sounds than are ordinarily recognized and used.

3. Consonants. Practise careful articulation to make consonants clear-cut.

4. Strive to correct such common errors as—
   "jist" for "just";
   "becuz" for "because";
   "uv" for "of";
   "fer" for "for";
   "teh" for "to";
   "gonna" for "going to."

(These are some of the worst, but the list can be extended to take in many others.)

REFERENCES:

Exercises: "The Stage and the School," by Ommanney.

Voice and Diction: "Voice and Speech Problems," by Raubcheck-Davis-Carll.

II.—Appreciation.

In view of the fact that students of the Intermediate School, being of an age between 12 and 15, are in a special class from the point of emotional development, it is important that plays for study and production be chosen with a view to their suitability for this particular age-group.

While it is true that small children are sometimes able to portray adult emotions with considerable facility, it must be recognized that this performance is largely imitative with little appreciation of the emotions portrayed. The intermediate school child, on the other hand, is just becoming aware of these specifically adult emotions and is usually a little shy of them. It would seem a mistake to introduce the dramatics class at this stage to plays representing conflicts which involve the deeper human emotions—sociological plays, tragedies or intricate problem plays.

Plays most suitable for this age are lighter comedies, farces, fantasies, historical and biographical plays.

1. The play should be read first. (Some teachers may prefer to read it aloud to the class; others will prefer having the class read it silently. Where the teacher does the reading there is the danger that imitative children will adopt the teacher's style and develop nothing for themselves.)

Play 1.

2. Class discussion of the play for type, plot, characterization, setting.

3. Select a cast and have them read the play aloud, giving attention to voice, diction, characterization, etc.

4. Friendly discussion and constructive criticism.

5. A second reading of the play by a different group. The pupils may make the selection of the readers, or there may be volunteers for the various parts.

Play 2.

6. Read another one-act play, following the same procedure as for the first; *or*
   Read several one-act plays silently with a short discussion afterwards.

Pupils may prepare to discuss or criticize orally a play they have seen.

REFERENCE: "Drama and Dramatics," by Helen Randle Fish.

III.—Scrap-books.

Part of the course should consist in the preparation of a scrap-book containing material on the history of costumes in definite periods, on furniture, modes of hairdressing, types of physiognomy, etc. This will be the student's work-book, and will be open to inspection.

They may keep a bulletin board on which will be posted any dramatic or literary news of interest.

1. *First method*: Encourage each pupil to keep a scrap-book for himself. This method becomes difficult in a large class.
2. *Second method*: Have only a class scrap-book, to which each pupil will try to contribute.
3. *Third method*: Keep this class scrap-book as a cumulative record of the class dramatic activities over the year. Into it should go plans, reports, sketches, diagrams, copies of director's (and actor's) scripts, newspaper clippings, programmes, class criticisms and letters in connection with business management. These cumulative dramatic year books could become a valuable part of the school's library.
4. The scrap-book may be of the ordinary kind, into which the material is pasted; *or*
   It may be a collection of "mounts." The latter type of book is constructed in the following way. Let all the pupils mount their contributions (articles, sketches, illustrations of costume, etc.) on pieces of stiff paper, all of the same size. These may be set up for inspection or reference, and later tied or bound together to form the scrap-book, and at the end of the term the pupils may take their mounts away if they wish.

REFERENCE: "The Stage and the School," by Ommanney.

IV.—Pantomime.

(Teach only the essentials of stage deportment and movement.)

1. Posture: correct standing, sitting, walking, crossing the stage.
2. Pantomime:
   (a) Facial expression (precedes action).
   (b) Gesture. (Arm movements begin at shoulder. Wrist leads in gesture of hand. Use upstage arm for gestures whenever possible.)

(c) Use of pantomime to express emotion. Positive emotions, such as courage, expressed by free and unhampered posture and action; negative emotions, such as fear, expressed by restricted posture and action.

3. Movement on the stage must be limited to what is essential. Every movement must have a reason; but do not have an actor move every time he has the chance, even with a reason, or rhythm will become merely restlessness.
4. Keep the stage balanced.
5. Avoid masking.
6. Keep in character.

REFERENCES:

"The Player's Handbook," by Selden.
"The Stage and the School," by Ommanney.
Note.—It is recommended that every teacher have access to these two books, whether or not any other reference books are available. They will be found useful in all phases of acting.
"Drama and Dramatics," by Fish.
"Amateur Acting and Play Production," Wayne Campbell.
"The Art of Pantomine," by Aubert.

V.—Producing a Play.

1. Read and discuss a play as for Play 1 and 2.
2. Cast, using the whole class and thus having several groups each working on the play. Special attention must now be given to voice, diction, and acting.

REFERENCE:

"Amateur Acting and Play Production," by Wayne Campbell.
"The Art of Play Production," by John Dolman, jr.

VI.—Puppetry.

Although formal study and activity in the various branches of stagecraft are not a part of the Dramatics course for Grade IX, it is possible for the pupils of the Intermediate School to gain useful experience in these on a smaller scale by the making of puppets and the staging of puppet shows. Work may be done in any one or all of the following:

1. *Marionettes*: stringed and jointed full figures operated on a miniature proscenium-type stage.
2. *Guignol Dolls,* or Finger Dolls: Figures that are worn on the hand, like a glove, and operated in the "Punch and Judy" type of stage.
3. *Shadow Figures*: Small figures of humans and animals, with necessary scenery, cut out in silhouette and operated between a bright light and a white screen so that their movements are seen against the screen by people seated in front of it. As an excellent training in exact and expressive pantomime, the pupils themselves may act as the shadow figures behind a large white screen.

The Art of Puppetry embraces almost all the arts of the theatre, and activity in it involves the following work:

1. History of puppetry.
2. Making of puppets, working in such materials as wood, plastic wood, clay, plasticine, plaster of paris, papier mâchê, cloth, metals, etc.
3. Design and construction of stages.
4. Design and construction of scenery.
5. Stage lighting.
6. Design and making of costumes.
7. Detailed study of pantomimic action in the operation of puppets.
8. Careful study and practice in Voice and Diction for the purpose of delivering the puppets' lines.
9. Theatre management and general business in the offering of public puppet shows.

The course in Puppetry offers not only a thorough preparation for later work in stagecraft, but because of its miniature nature, an economical one as well. It is an activity that may be carried on as conveniently in rural as in city schools.

Suggestion:

In Edmonton and Calgary and other large centres, the schools could be encouraged to put on a different play each, and a school festival, *not competitive,* could be held in a central hall.

VII.—Choral Speaking.

Choral Speaking is differentiated from "Class Recitation" by its co-operative approach. Each pupil is responsible not merely for memorization but for the *whole approach* to each poem, so that the ultimate presentation is the result of the pooled thought and understanding of both choir and conductor. Personal thought and emotion cannot be expressed by the group; therefore, only poetry or prose voicing thought and feeling that is universal, racial or national is suitable for Choral Speaking.

Technically, the teacher's aim should be perfection in unison work, breath control, consonant and vowel-shaping, clean syllabification and fluid rhythmic utterance. Above all things, the Speech Choir must strive for (a) unity of articulation and syllabification; and (b) unity of pitch and inflection. The choir should be grouped so that all the members may hear each other. Each choir must have a conductor; and the job of conducting should be performed by each choir member in turn. Full discussion of each poem should precede any attempt at memorization. Each pupil in turn should listen to his own choir's rendering at various stages in production.

The most satisfactory size of Speech Choir is fifteen to twenty-four voices, although a few as twelve or as many as thirty may be used. Very small groups (three to seven) may be used if speech material is selected which does not require full "orchestral" effects.

Choral Speaking should be performed progressively, the pupils gaining mastery of each of the following techniques before proceeding to the next:

1. Unison Speech.
2. Regular Distribution—
   (a) Antiphonal.
   (b) Part-speaking (three-part, four-part, etc.).
3. Sequential Speech.
4. Irregular Distribution.
5. Spoken Descants.

REFERENCE BOOKS:

(a) On the technique of Choral Speaking.

An Approach to Choral Speech: Mona Swann—Gerald Howe Ltd., 23 Soho Square, London.

Choral Speaking: Marjorie Gullan—Methuen.

(b) Collections of choral-speech material:

Many Voices, Books I and II: Mona Swann—Gerald Howe Ltd.

Golden Treasury: Palgrave.

(See also the books listed under "Choral Speaking" in the Programme of Studies for the Elementary School.)

GENERAL LIST OF REFERENCE BOOKS

NOTE.—*The first two books on the following list will furnish the teacher with sufficient reference material to cover the essentials of the course. If the resources of the school permit, a larger reference library is recommended. The books of particular merit are marked with an asterisk* (*).

*"Modern Theatre Practice"; Heffner, Selden and Sellman—Crofts Publishing Co.

*"The Stage and the School"; Katherine Anne Ommanney—Harper Brothers, New York.

*"The Player's Handbook"; Selden—Crofts Publishing Co.

*"Stage Management"; Peter Bax—Lovat Dickson, London.

*"The Art of Play Production"; John Dolman, jr.—Harper and Brothers, New York. (An especially good book for general reference, and inspiration.)

"Amateur Acting and Play Production"; Wayne Campbell—Macmillan Co.

"Technique in Dramatic Art"; H. Bosworth—Macmillan Co.

*"Drama and Dramatics"; Helen Randle Fish—Macmillan Co.

"Playmaking and Plays"; Merrill and Fleming—Macmillan Co.

"The Stage is Set"; Lee Simonson—Harcourt, Brace and Co. (For advanced work and inspiration.)

*"Voice and Speech Problems"; Raubcheck-Davis-Carll—Prentice Hall Inc., New York.

"First Principles of Speech Training"; Avery-Dorsey-Suckels—Appleton & Co.

*"Stage Costuming"; Agnes B. Young—Macmillan Co.

"Historic Costume"; Lester.

"Scenery Simplified"; Webster & Wetzel—Eldridge Entertainment House, Inc.

*"The Art of Pantomime"; Aubert—Henry Holt & Co.

*"Time to Make-up";Wharf—Walter Baker Co.

List of Plays Recommended for the Intermediate Grades.

NOTE.—*The recommending of this list does not preclude the choice of other plays.*

From the following list as a basis, it is hoped to compile an anthology of plays for intermediate schools. Teachers are urged to study and produce as many of these as possible, and to submit their criticisms and suggestions regarding them, or to name other plays that they think should be included in such an anthology. In this manner, with the co-operation of all Dramatic teachers, it is believed that an excellent anthology, well-suited to Alberta needs, may be compiled after this school-term.

The Child in Flanders—Cicely Hamilton. Nativity Play. Six simple interiors and exteriors. Costume. A good problem in production. Any number of boys and girls. "One Act Plays of To-day," volume 2.

The Royal touch—Elsie Park Gowan. Social drama. Exterior. Modern European costume. 3 boys, 2 girls. May be obtained on application to the author, care of the University of Alberta.

Figureheads—A romance. Interior. Oriental costumes. 3 boys, 2 girls. "Magic Lanterns."

Overtones—Alice Gerstenberg. Social comedy. Interior. Modern American. No boys, 4 girls. "Ten One-Act Plays," by Alice Gerstenberg.

Followers—Comedy of manners. Interior. English costume of 1850. 1 boy, 3 girls. "One-Act Plays of Today," Vol. 1; and "Junior Play Book, edited by H. L. Cohen.

Six Who Pass While the Lentils Boil—Stuart Walker. Fantasy. Interior. Costume. 11 or more of either boys or girls. "Representative One-Act Plays by American Authors."

Sir David Wears a Crown—Stuart Walker. Fantasy. Sequel to "Six Who Pass While the Lentils Boil." Exterior. Costume. 18 or more of either boys or girls. "Twenty Contemporary One-Act Plays," edited by Frank Shay.

At the Tumbrils Pass—Van der Veer and Bigelow. Drama. Interior. French Revolution costumes. No boys, 7 to 14 girls. "One-Act Plays for Stage and Study," 7th Series.

Grandma Old-Style—Eaton. Comedy. Interior. Modern. 2 boys, 4 girls. "One-Act Plays for Stage and Study," 7th Series.

The Good and Obedient Young Man—Betty Barr. Quaint, stylized comedy after the Japanese manner. Unit setting for several interiors and exteriors. An excellent problem in acting, directing and setting. 6 or more boys, 2 or more girls, or all girls. "One-Act Plays for Stage and Study," 7th Series.

April Shower—Philip Johnson. Comedy. Interior. English costume of 1812. No boys, 6 girls. "Four New Plays for Women and Girls" (Nelson).

The Romance of the Willow Pattern Plate—Van der Veer. Comic fantasy done in the Chinese manner. Either boys or girls. "Twelve One-Act Plays."

The First Dress Suit—Medcraft. Modern comedy. Interior. 2 boys, 2 girls. "One-Act Plays for Stage and Study," Vol. 6.

A Wedding—Kirkpatrick. Modern farce. Interior. 4 boys, 3 girls. "One-Act Plays for Stage and Study," Vol. 4; and "Short Plays," edited by Knickerbocker.

Two Crooks and a Lady—Pillot. Modern melodrama. Interior. 3 boys, 3 girls. "Plays of the 47 Workshop," and "Short Plays," edited by Knickerbocker.

Two Slatterns and a King—Edna St. Vincent Millay. 2 boys, 2 girls. "Three Plays," by Millay; and "Twenty Contemporary One-Act Plays (American)," edited by Frank Shay.

The Bride—Gertrude Jennings. Several girls. "Best One-Act Plays of 1931."

The Princess and the Woodcutter—A. A. Milne. Fairy tale. Either boys or girls. "Eight Modern Plays."

The Slippers of Cinderella—Graham Robertson. Fairy tale. 1 boy, 8 girls. "Eight Modern Plays," and "Another Treasury of Plays for Children."

A Star Fantasy—Elizabeth Lewis. Fantasy dealing with the Star of Bethlehem. Costumes. 7 of either boys or girls. In a collection edited by John Bourne and published by Lovat Dickson.

Pot of Broth—W. B. Yeats. Comedy. Interior. 2 boys, 1 girl. "One-Act Plays of Today," Vol. 3.

Brothers in Arms—Merrill Dennison. Satirical Canadian comedy. Interior. 3 boys, 1 girl. "Book of Plays," Voaden; "Canadian Plays from Hart House Theatre," Vol. 1; and "Unheroic North," by Dennison.

The Potboiler—Alice Gerstenberg. Satirical comedy. Modern. Interior, 4 or more boys, 2 or more girls. "Fifty Contemporary One-Act Plays," "Ten One-Act Plays," by Gerstenberg; and "Twelve Plays," edited by Knickerbocker.

The Grand Cham's Diamond—Comic melodrama. Interior. 3 boys, 2 girls. "One-Act Plays of Today," Vol. 1; "Seven Modern Plays for Younger Players"; and Let's Do a Play."

The Monkey's Paw—W. W. Jacobs. Tragedy. Interior. 4 boys, 1 girl. "One-Act Plays of Today," Vol. 2.

A Night at An Inn—Dunsany. Melodrama. Interior. Costumes. 8 boys, no girls. "One-Act Plays of Today," Vol. 2.

The Tents of the Arabs—Dunsany. Romance. Exterior. 5 boys, 1 girl. Arabian costume. "Book of Plays," Voaden.

Poor Maddalena—Saunders. Fantasy. Interior and exterior. Costume. 2 boys, 1 girl. "Twelve Plays," edited by Knickerbocker.

Three Pills in a Bottle—Rachel Field. "Six Plays by Rachel Field," and "Plays of the 47 Workshop."

Ali the Cobbler—Sheppard. Comedy. Interior. Costume. 3 boys, 1 girl. "Best One-Act Plays of 1932."

Poetasters of Ispahan—Bax. 11 boys, 1 girl. "Nine Modern Plays."

Bargains—Katherine Kester. All girls. "Miniature Plays for Stage and Study," edited by Johnson.

The Roland Ruby.

Birthday of the Infants—Oscar Wilde. "Another Treasury of Plays for Children.

The Spartan Girl—A. J. Talbot. Farce. Early Greek. Any number of boys or girls.

The Dyspeptic Ogre—Percival Wilde. Fairy tale. Interior. Any number of boys or girls. "Junior One-Act Plays of Today"; "Atlantic Book of Junior Plays."

The Knave of Hearts—Louise Saunders. Fairy tale. Interior. Any number of boys or girls. "Junior One-Act Plays of Today"; "Atlantic Book of Junior Plays" and "Drama and Dramatics," by Fish.

Twentieth Century Lullaby—6 boys, 3 girls.

"Seven to Seventeen"—21 plays for boys and girls collected and edited by Alexander Dean. Containing many suitable plays among them.

"The Moon For A Prince."

"The Forks Of A Dilemma."

"Breakfast."

"The Rival Peach-Trees."

MUSIC

GENERAL INTRODUCTION—MUSIC IN THE INTERMEDIATE SCHOOL

"Music is the most intimately personal of the fine arts, searching down into the heart of the individual and bringing to expression feelings that are too deep for words. At the same time music is the most social of the fine arts. It is the art we enjoy together."—Edward Howard Griggs.

The course in Music for the Intermediate School has been built as a continuation of the work outlined in the music course in the "Programme of Studies for the Elementary School." Teachers offering this course are strongly advised to familiarize themselves with the music work required by the Elementary School Course.

In this division of the school, pupils are approaching or have entered the period of adolescence. The psychological situations incident of this period of youth, and the various vocal situations arising from changing voices, are problems which demand special attention on the part of the teacher, if the aims of this course are to be fully realized.

DESIRED OUTCOMES OF INSTRUCTION

There is a definite need for Music at the adolescent age—Music as a part of education, not Music apart from it. The main purpose of this course is to have Music function as a part of the active life of the pupil in school and in his present life outside of school. Therefore boys and girls must find joy in Music, both as a personal

and as a social interest. "When pupils learn, by experience, that music re-creates the world for them, then we shall have the leaven for a musical nation."

It is the function of the school to make *good* music popular by making it familiar. Music selected for these grades should be worth while, and should make a strong emotional appeal to pupils through its beauty of melody, its appealing harmony, and its expressive text. "Music is the language of the finer emotions." It is emotion captured and crystallized in tone. If we do not teach it so, we do not teach it at all."

Enjoyable musical experiences aid in the development of high ideals, the formation of good taste and artistic discrimination. "What the pupil is able to do here and now is of less importance than what interests or repels him. Attitudes, tendencies, desires are more important than immediate achievement."

Music is typically an art of self-expression; therefore pupils should be enabled to understand the music they hear or perform. "It is infinitely more important vocally, musically, educationally, that the performer feel what he sings and sings what he feels than that he follow some routine of voice production."

While the course does not aim to make professional musicians of the better music students, special interests and aptitudes in pupils should be noted, conserved and encouraged with a view to having these pupils elect freely, in the High School, suitable advanced courses, vocal or instrumental, for which they are especially talented.

It is believed that, by emphasizing music rather than the *performance of it*, pupils will have a keener incentive to acquire skill in performance. While mastery is one source of real pleasure in performance and is the best assurance of a carry-over of this work into life, it is felt that skills and techniques should be developed as an outgrowth of felt needs at this stage, rather than as arbitrary impositions. "Teach the child so that his love for music may grow steadily deeper and wiser and you will not have much trouble in teaching him to read it."

GENERAL SURVEY OF THE COURSE

The course is essentially general and exploratory in character. For general experience in music, three types of activity are recognized: (1) Performance; (2) Listening to Music; (3) Creative Music.

General Music will be required in Grades VII and VIII and will be elective in Grade IX.

This course will include:

(a) Chorus Practice, including voice culture.

(b) Sight Singing and Ear-Training (the latter to include creative work in simple melody writing).

(c) Elementary Theory.

(d) Listening to Music.

Parts (a) and (b) and (d) constitute the gist of the course and are closely associated.

Part (c) is important, but distinctly subsidiary to parts (a) (b) and (d).

Part (c) is to be based on the songs that are studied and, in a general way, is to be kept within the limits of the work required for those songs.

Part (d) will necessitate some outlay for records. A number of the records listed in the outline for part (d) are those recommended for Music Appreciation in the elementary grades. (See the outline for Music in the "Programme for the Elementary School.") In smaller schools Grades VII, VIII and IX may be combined with lower grades for Music Appreciation. Until equipment has been provided for this work, it will be necessary that the teacher give additional time to parts (a) and (b).

In Grades VII and VIII, where two music periods per week are available, it is suggested that a portion of each period be devoted to part (a), to which part (c) is closely allied, parts (b) and (d) alternating during the remainder of the period. In Grade IX, when four periods are assigned to Music, two periods should be given to part (a), one period to part (d), and one period to parts (b) and (c) alternately. If less time is available in this grade, these numbers will be decreased proportionately.

Additional Activities

In larger centers where conditions are favourable, the Intermediate School Glee Club is a recommended additional activity for those pupils whose interest and capabilities warrant further musical participation.

Requiremnts for membership in the Glee Club will be, generally, a good singing voice, the ability to hold a part in a part-song, and fair sight-reading ability. A girls' chorus, a boys' chorus or a mixed chorus are possible types of choral ensembles according to existing conditions. In the girls' chorus suitable material in two and three parts should be chosen. Good unison songs with effective accompaniments are excellent by way of variety. The selection of fairly easy music, which has charm and which expresses a variety of moods will assure progress and continued interest. In the boys' chorus really satisfying musical results may not be possible due to the shifting of voices from part to part. Although this may result, very often, in an unbalanced group, no voice should be sacrificed for the sake of balance. The material should comprise easy two and three-part songs as well as unison songs, all of which make a definite appeal to boys (words and music). Under capable direction such an organization has excellent possibilities, both socially and artistically.

This activity should never supplant part (a) above, which is intended for *all* pupils, unless, in rare situations, where the numbers of these grades are few and all voices above average.

The School Orchestra or Band is an organization to be encouraged even though the membership be small, because of its social, avocational and vocational possibilities. Many pupils at this age are particularly interested in acquiring skill in instrumental performance, and possible talent should be explored. Where interest is keen, means will be found for securing the necessary equipment to

supplement instruments which may be the property of the pupils. This type of musical activity will meet the needs of many pupils who are not particularly gifted vocally.

For further information concerning requirements in instrumental Music the teacher is referred to the outline for Grade IX.

GENERAL MUSIC

(a) Chorus Practice.

The course is required by all pupils in Grades VII and VIII for general training and for exploratory purposes. In this way the less talented as well as the more proficient pupils are afforded an opportunity to enjoy musical experiences beyond the Elementary School level. They may, then, become interested in music not necessarily as an art to be cultivated, but as a recreation to be indulged in. This interest is the greatest assurance that music will carry over into later grades and will function in the home and in community life.

Material

The course consists chiefly of the singing of unison songs, part songs, and choruses comprising folk songs, art-songs, songs with descant and modern songs. Rounds and canons may be used also and easy cantatas may be introduced if desired. It is understood that the material chosen will be suitably graded as to difficulty, and will provide for growth in this work from grade to grade. Material should be worth while and should make an appeal to various groups—boys, girls or mixed groups. Correlation with other phases of music work, with other subjects, with Special Day observances, with Special Assembly Programme plans, may dictate the choice of material from time to time. Patriotic Songs, Community Songs, which are heard often in social or other gatherings outside of school, should receive attention here as these pupils are beginning to take their place as grown-ups in the social life of the community. The more difficult unison songs should be taught by rote (score in hands of pupils), the simpler ones by the reading process.

Choral Groups

Due to varying vocal situations peculiar to adolescence, definite groupings may be necessary, girls' chorus, boys' chorus, and, where possible, a mixed chorus. Beginning with a two-part chorus in Grade VII, first and second soprano, the introduction of three-part singing may be possible in Grade IX (S.S.A. or S.A.B.), depending upon the condition of the voices in the group. The introduction of four-part singing in Grade IX must be left to the discretion of the instructor. In the majority of schools this work will be better left for the High School. In the case of unchanged voices, no pupil, unless possessing a naturally low voice, should be assigned regularly to an alto part.

The Small Ensemble

A field of choral participation that is very practical, both musically and socially, with pupils of this age, is the Small Ensemble. Duets, trios, quartettes, both vocal and instrumental, have greater possibilities of a carry-over into community and adult life than the larger organizations. It meets a social need of adolescent boys and girls in a wholesome and cultural way. The development of true ideals of co-operation and group-feeling is possible through

such an activity. Pupils now can be treated as grown-ups and made to assume the responsibility of helping themselves. This is necessary in the Small Ensemble where the success of the individual is the success of the group. The work need not be confined to the few gifted students. This work may pave the way for a *Cappella* Singing in the High School. The Small Ensemble is a practical answer to the leisure time objective of education.

Voice Culture

The main aim of chorus work is joyous, musical, expressive singing. Boys and girls will more likely sing with feeling, with beauty of tone, with finely discriminating interpretations, if the mind is alive with the meaning of the words. "The secret of a beautiful tone lies in the living imagination." A beautiful tone, if correctly produced, is light and easy-flowing, and is accurate in pitch. All forcing and straining must be avoided. All voices should be assigned to a part where they sing easily and comfortably in a limited compass. Proper breathing, intonation, voice blending and diction should receive careful attention. Above all, pupils at this age need understanding and sympathetic encouragement.

The Adolescent Voice

It is important that special attention be given the diverging needs of the voices of the pupils in these grades. The characteristics, vocal range and the capabilities of each individual's voice should be determined by the instructor in order that careful treatment of changing voices be given.

The girls' voices change somewhat during the adolescent period. Some can sing as high as ever, others higher. These become sopranos. The soprano voice is usually light and clear and is able to sing lightly and without strain between

Some girls, who cannot sing as high as formerly, and whose low voices do not develop, are classed as second sopranos. They may sing between

Those whose voices become lower in range and richer and fuller in quality become altos. The alto voice may sing between

If the voice cannot sing a full easy tone on the lower A, it should be classed as first alto. There are comparatively few alto voices, especially in the first two years of the Intermediate School.

Doubtful soprano voices on the second soprano part, and doubtful alto voices on the first alto, is a safe classification.

Unchanged boys' voices may be tested in the same way as girls voices are tested.

The boys' voices change completely during adolescence, becoming different in range and in quality, and should be matched carefully. The change in quality and pitch is discernible in the speaking

voice, and, if the voice is "coaxed" downward gradually and naturally during the two or three years it is changing, it will come to no harm and will sound well all the time. As soon as low tones appear, the boy should be shifted to a lower part, alto, then alto-tenor. The changing voice is the boy tenor. This voice is thicker in quality and is more limited in range than the alto voice. He may sing between

The boy baritone or bass is recognized by his deeper speaking voice, the light, boyish quality gradually disappearing. He may sing comfortably between

To test voices, a simple well-known song may be played in different keys until one is found that is suitable. The scale may be used in various keys, pupils singing to "loo" or "lah."

Boys should be encouraged to avoid harsh use of the voice during mutation, and teachers should never allow a voice to strain for the sake of a well-balanced chorus.

General Directions Voice Work

"Good breathing is the very foundation of good singing and good posture is the straightest road to good breathing." If pupils sit or stand "easily erect," they will be more likely to breathe, steadily, slowly and deeply. Slow expiration of breath is necessary for steady, smooth, facile tone-production.

Muscular ease and mental relaxation are essential to proper vocalism. "A cheerful mood means a cheerful tone."

The use of short, simple, rhythmical exercises for *a few minutes* each lesson period will promote good tone-production. Downward vocalizations, sung pianissimo, together with a frequent use of staccato, will aid in the production of a light, elastic tone. The prefixing of a labial consonant to the vowels (oo, oh, ay, ee) for vocal exercises, tends to remove constriction at the larnx, and will help in securing clear, *forward-resonant tone.* The light, loose hum, sung pianissimo, is an effective alternate.

Any improvement in diction will necessitate the purifying of the vowels as these are the sounds upon which the singing voice is sustained. For singing vowels the mouth cavity must be well opened. (The mouth is opened by dropping the lower jaw.) There must be a slight movement in parts of the tongue. (The tip of the tongue will tonch the back of the lower teeth for all vowels.) There must be a definite, correct shaping of the lips. "No true vowel colour can be obtained without lip movement."

Vowels

With long vowels the pushing forward of the lips increases resonance.

"oo," as in "moon" requires the lips well forward, the lower jaw dropped.

"oh," as in "low": lips slightly less forward than for 'oo."

"au," as in "call": lips slightly less forward than for "oh," the front teeth clearly seen.

"ah," as in "calm": the mouth wider from side to side (smiling mouth).

"e," as in "me": mouth wide from side to side, little space between teeth, upper and lower teeth seen.

The position of the lips will be the same for the short vowels as for its corresponding long vowel.

"oo," as in "hood": lips less forward than for "oo" (moon), and slightly opened.

"o," as in "not": lips less forward than for "oh". The top teeth are seen slightly.

"a," as in "cat": similar position as for "au" (call), lips slightly less forward.

"u," as in "but": mouth slightly wider than for "o" (not), teeth seen more clearly.

"e," as in "met": mouth wider from side to side than for "ee" (me), vowel placed well forward, mouth well opened.

"i," as in "hit": the upper lips drawn back from "e" position, lower jaw dropped.

Consonants

The correct enunciation of consonants is an essential part of good diction. Pupils should be trained to attack initial consonants quickly and precisely, to dwell on the vowel sound, to sound the final consonant without exaggeration, avoiding the "uh" sound so often heard after the final consonant. Attention should be drawn to the use of the tip of the tongue, the teeth and the lips in the sounding of consonants. Special attention should be given to the consonant "r". If it precedes a vowel (roll), or is combined with another consonant (bring), it should be lightly rolled in front of the mouth with tongue well forward. The use of "tongue twisters," as suggested in Oral English, may be employed as an aid in overcoming a careless treatment of consonants.

With the compound vowel sounds (diphthongs), such as "oi" (toil), "au," "ih," the tone is sustained in the first vowel sound, "au," and the second, "ih," is pronounced as quickly as possible.

The work in diction will be an outgrowth of the needs arising from text of songs sung in choral class.

(b) Sight Singing and Ear Training.

Provided the minimum requirements laid down in the Elementary School course have been met, the drill work in learning to read simple one-part music will have been done. Pupils in the Intermediate School, then, should be sufficiently well prepared to explore new fields of musical experience in easy two and three-part reading. Where new problems of tune or time are introduced, these should be confined to one-part songs. The work of Division II should be reviewed and extended.

Since the ability to follow the score is a valuable asset to a member of any choral group, pupils who have not gained skill in reading music before entering this division of the school may acquire some facility if interest and motive for learning are strong. The place of music-reading here will, of necessity, be incidental to

singing, choral, and listening activities. Extra help from the teacher will bring suprisingly quick results with pupils to whom accamplishment seems sufficiently desirable.

Broadly speaking, all music education is ear-training. All musical learning, from Grade I up, has depended upon hearing. Early attempts at tone-matching, rote-singing, aural analysis of songs to determine their phrasal construction, the use of the so-fa syllables in oral dictation and listening to music, played or sung, have all been directed toward the aural comprehension of music. Ear-Training

In this division of the school, as in Division II, formal work in ear-training has two purposes:

(1) To assist the ear and the eye in forming associations between music and its notation. This includes both oral and written dictation and is of definite value in connection with music reading. The work of Division II should be continued and extended.

(2) To cause the mind to take in a larger number of details in the case of music being sung or listened to. This induces a higher grade of appreciation, which is possible with pupils in these grades who have had the musical training provided for in the Elementary School course.

A richer musical experience and a keener appreciation of music is possible if, to the work in Performance and Listening to Music, the improvising of melodies is added. The success and value of this work will necessitate musical training and a knowledge of notation on the part of the pupils, and a teacher who is capable, musically, of guiding such effort. Creative Activity

"Music is emotion, captured and crystallized in tone." A song will be created when a mood has developed due to some personal or classroom situation.

Early attempts at improvising songs are preferably class efforts with the teacher acting as guide. As each phrase is worked out to the satisfaction of the class (preferably words and music together), it is sung by the class and committed to memory. It may be written on the blackboard. If the best of such work is published in the class paper, or sung in assembly periods, much satisfaction will be experienced and worth-while individual work may result.

The development of ability to hear music mentally is worthy of attention in connection with the work in ear-training. "Aural memory and aural imagination are fundamental necessities in the singing class." They are especially helpful in connection with sight-reading and especially part-singing. One method of training a class to hear mentally is suggested: the class sings a well-known song silently while the teacher directs their singing. At a signal from the teacher a small part of the song is sung aloud, and at a second signal the silent singing is resumed. The teacher may indicate more than one part to be sung aloud during the song. Later, individual work may be given to test improvement. Aural Memory

Two other phases of aural work, "seeing with the ear and hearing with the eye," may be developed to an extent at this time. The following suggestions are offered: Having given the key, encourage Aural Vision Visual Hearing

pupils to visualize the notation of at least a part of a well-known tune, played or sung. Individuals may be asked to write the tune on the blackboard. This may be done phrasewise. It may be considered a part of the work in written dictation. On the other hand, pupils may be asked to sing mentally from the printed score and to demonstrate their ability to do so by singing aloud. Easy material should be chosen.

All phases of the above aural work will appeal to pupils if it is done informally and if the spirit of fun is allowed to enter.

(c) Elementary Theory.

The theory to be taught in connection with choral music is for the most part such as is necessary for performing with musical understanding and correctness the selections that are chosen. This work is indicated in the outline for each grade.

(d) Music Appreciation.

Good music, from its peculiar character, makes a three-fold appeal; first, to the ear, as purified, crystallized sound; second, to the intellect, engaging memory, and offering for discernment the relation of parts in a balanced form; and third, to the emotions and states of feeling.

While a certain amount of incidental study of music appreciation may be carried on in conjunction with the choral class, it is necessarily limited in scope, being confined to the particular music or composer under study. A more comprehensive course is necessary, to provide an opportunity for a broad outlook over the field of music in general. In this way the habit of critical listening is cultivated and an intelligent idea of the various media of musical expression, music terms, music history, biography and aesthetics which, in the main, *constitute* the study of Music Appreciation, is gained. It bears the same relation to music education as the subject of Literature and its history bears to the study of English.

The purpose is to acquaint the student with the great literature of music in such a way that he may study it in the light of the times in which it was composed, and note the manner of development of its various forms. The success of the course depends on the presentation of a considerable amount of music, arranged to show the progress of musical art from the earliest times. Pupils are expected to memorize many of the more impressive themes from masterpieces and works bearing the individuality of their composers.

The influence of nationality may be shown, and the evolution of art in different schools of composers: the early church school, the mediaeval secular school, the contrapuntal school, the classical school, the romantic school and the modern school.

The course should include short, pointed lessons on the birth and development of opera and oratorio, the brief biographical studies of the great masters, supported by the performance of excerpts from their more celebrated works.

The development of the symphony orchestra is an important study. The different orchestra "choirs" and the timbre and capabilities of the instruments should be noted and compared.

GENERAL ASSEMBLY PERIOD

The educational possibilities of the weekly or monthly Intermediate School Assembly Period make this activity worthy of attention. In the rural school this period is possible, but will, of necessity, include the Elementary School, each division of the school making its contribution to the programme.

Although these periods may include, at times, various types of activities—dramatics, debating, public speaking, readings and recitations by the pupils themselves; or lectures, educational movies, and performances by artists outside the school—music by the pupils should play an important part. Purely musical assemblies should be encouraged and planned from time to time.

The purpose of the General Assembly is *not* to replace the regular General Music period, but rather to supplement the work being done here by offering opportunities for all grades to meet socially, each responsible for its contribution toward the worthwhile entertainment of all. Too, the prospect of a regular public performance, even though it be only singing before fellow students, is an incentive to good class work in the way of preparation for an artistic performance.

All programmes should be of high order and should be carefully planned and well conducted. Pupils should be given an opportunity to assist teachers in the planning and managing of each entertainment.

These programmes may include:

1. Singing in parts by the whole assembly. This should be considered always the most important part of all assembly programmes. A special seating plan will be required, i.e., by voice parts, also a capable leader and a good accompanist. A variety of material is an essential consideration. The songs will have been learned in the General Music classes in the different grades.
2. Performance by individual grades, by the Intermediate School Special Chorus, or Glee Club, or by the Orchestra (if such organizations exist).
3. Vocal or instrumental solos, duets, trios, etc.
4. Rhythmical work (folk dances).
5. Contributions from the High School or from musical sources outside of school.
6. Listening to music (radio, phonograph).

GENERAL MUSIC Grades VII, VIII

The teacher is advised to read *carefully* "General Introduction."

Specific Aims.

1. To continue the work of Division II of the Elementary School in the development of free and beautiful singing of songs.

2. To provide pupils with an increasingly wide and enjoyable musical experience through the development of concerted chorus-singing in the direction of mass chorus practice.
3. To develop increased power to sing at sight through the use of simple two and three-part songs.
4. To develop increasing power of the eye and ear in correlation.
5. To pay special attention to the diverging needs of the voices of the pupils.
6. To recognize the birth of new effective (emotional) states in the pupils and so provide for the best possible emotional experience and development.
7. To recognize the social effects of music and to articulate closely the musical activities of the school with those of the home and the community through the encouragement of independent performance by individuals and by small groups.
8. To develop an intelligent musical taste and judgment and the power to perceive the aesthetic and spiritual significance of music through thoughtfully directed work in "Listening to Music."

(a) Chorus Practice: Procedure.

Group singing will constitute the main part of the work in these grades.

See *"General Introduction" under this heading.*

It is thought advisable to confine the work of Grade VII to the singing of unison and suitably easy two-part songs in order to meet the varying degrees of musical training which pupils entering this division of the school may show.

With the demands of the majority in mind, unison singing may be stressed. For pupils who have had little musical training, unison singing will aid especially in the acquiring of voice-control. The more difficult unison songs should be taught by rote, the simpler ones by the reading process.

If the minimum requirements of Division II have been met, pupils entering this grade will have acquired the ability to read simple, one-part music. Here pupils should experience the joy of producing pleasing harmonies. The teachers introducing two-part work for the first time are referred to the section "Supplementary Work" in Grade VI outline, Elementary School Course. This work will, of necessity, be closely connected with the work in sight-singing and ear-training, as "singing in harmony arouses and directs attention to the benefits that accrue from the ability to read the musical score."

With unchanged voices there should be a frequent interchange of parts. No pupil, unless possessing a naturally low voice, should sing the second part regularly. All pupils should acquire ease in singing a part other than the melody. This assures more reliable performance.

In Grade VIII changing voices may necessitate the introduction of three-part singing (S.S.A. or S.A.B.). In larger centres it may seem advisable to have a boys' chorus and a girls' chorus. In smaller schools the mixed group will be the only possibility. Great care should be exercised in the choice of material. All three-part songs should be simple—hymn-tune degree of difficulty. No voice should be subject to strain. (See "The Adolescent Voice" under General Introduction.)

For two or three-part chorus singing the following method of presentation is suggested:

Interest in the song may be aroused through the appreciative reading of the text and through the telling of interesting details relating to the composition. The pupils listen to the song played on the piano, following closely the voice-parts on the score. Pupils may hum the parts softly as the song is played a second time. All pupils may sing the low parts (to syllables, if necessary, then to "loo"). Pupils try parts together, to "loo," and phrasewise, if necessary. All should be encouraged to sing easily and to listen to all parts in order to secure balance and a pleasing blend. The text should be read aloud softly by the group before singing, in order to establish the pronunciation, enunciation and phraseology of the words to stimulate proper reaction to the mood of the piece. (See "General Directions, Voice Work," under General Introduction.)

Material

A.—Song Books.

- Progressive Music Readers, Books III and IV.
- Cantemus, Part I.
- Halcyon Song Book.
- Twice 55 Community Song Book.
- Music Highways and Byways, "The Bronze Book" (Folk Songs and Folk Dances of Many Peoples, and plays based on these)—Gage & Co.
- Foresman Books of Songs, Book III (Folk Songs) (Unison, two-part, three-part songs, well graded for changing voices)—Gage & Co.
- Northland Songs: Murray Gibbon (Unison songs with Canadian Themes)—G. V. Thompson Co., Toronto.
- A Canadian Song Book: Ernest MacMillan (Unison, two-part and three-part songs)—Dent & Sons.
- Junior-Senior High School Chorus Book: Baker and Daniel—Pressor & Co.
- The Glenn Glee Club Book for Boys—Ditson & Co.
- Chorus Book for Boys: Probst and Berquist—Book I—Schriner & Co.
- Arnold Descant Series arranged by Dunhill—Arnold, London.

B.—Songs.

Unison Songs:

The Song of the Music Makers—Shaw (Cramer)	12c
Argus—Shaw (Cramer)	12c
Come Unto These Yellow Sands—Purcell (Cramer)	12c
Pioneers—Shaw (Cramer)	12c

Bois Epais—Lully (Novello).
Lass With the Delicate Air—Arne (Bayley, Ferguson).
Jerusalem—Blake-Parry.
Encore Song—Harris (Year Book Press) 10c
Creation's Hymn—Beethoven (Novello).
Ye Spotted Snakes—Collingwood (Lyric Collection) 12c
Who Is Sylvia?—Schubert (Novello) 7c

Two-Part Songs:

A Little Folly—Bach (Lyric Collection) 12c
Many's the Time When the Heart Was Young—Schuman (Lyric Collection) 12c
Good-Night—Brahms (Lyric Collection 10c
Come Down to Kew—Deis (Schirmer's School Series) 15c
Wander's Night Song—Rubinstein (Schirmer's School Series) 8c
I Would That My Love—Mendelssohn (Schirmer's School Series) 8c
Bells of the Sea—Lamb-Solman (Sam Fox Series) 15c
Cornfield Melodies—Gates (Flammer Series) 15c
Pop Goes the Weasel—Schoffer-Kountz (Witmark Series) 15c
A Madrigal of Spring—Fletcher (Novello).
Little Jack Horner—Diack (Lyric Collection).

Three-Part Songs (S.S.A.):

Awake—Pelissier (Leonard, Gould & Boettler Collection) 15c
The Jolly Miller—Traditional (Leonard, Gould & Boettler Collection) 10c
Where'er You Walk—Handel (Lyric Collection) 12c
By the Waters of Minnetonka—Lieurance (Presser & Co.) 12c
Gleam, Gleam, O Silver Stream—P. de Faye (Beacon Series)—Silver Burdett 12c
Amaryllis (arranged by Ambrose)—Schmidt Collection 10c
The Little Dustman—Brahms (Schirmer's) 12c
The Cuckoo Clock—Grant-Schaefer (Clayton Summy Co.) 8c
Come to the Fair—Wheeler (Boosey & Co.) 15c

Three-Part Songs (S.A.B.):

John Peel (Hunting Song)—Wynn 12c
Comrades of the Road—Nelson (Willis School Songs) .. 10c
Dear Land of Home—Sibelius (Frank Edition) 15c
Night Shadows Falling—Lemare (Frank Edition) 10c
All Through the Night—Welsh (Wynn) 10c
Old Folks at Home—Foster.
I Am the King of the Outlaws—(Willis School Songs) .. 10c

A list of firms who are specialists in School Music materials, and lists of Teachers' Reference Books are given in the Outline for Grade IX.

(b) Sight-Singing and Ear-Training.

The work in sight-singing will be a necessary part of the work in chorus-singing. Since the new problem in these grades is the reading of part-songs, the material will, of necessity, be simple from the standpoint of tune and time. No problems other than those suggested to be included in the work of Division II of the Elementary School should be introduced. (The teacher is referred to the Elementary School Course.) Various problems of tune and time will receive attention as the needs arise. Singing at sight, without the use of syllables, should be encouraged.

For recommended books dealing specifically with this phase of the work, see Grade IX outline, under this heading.

For the various types of work under ear-training, the teacher is referred to "General Introduction."

(c) Elementary Theory.

While the acquisition of theoretical musical knowledge is not an objective of the course, nevertheless it should be an outcome of the musical activities of the pupil, since music theory touches every aspect of the work—song-singing, music-reading, music-writing, music-listening, etc. Through the richer musical experience provided in these grades the fundamental facts of music theory, covered in an incidental way in the Elementary School, should become permanent factors of the pupil's musical mentality. New theoretical facts should be dealt with as they arise.

Grade VII: A better understanding of the signs of staff notation and expression met with in the Elementary School programme: staff; treble clef; ledger-lines; notes; rests; dots; bar; double bar; accent; repeat signs; tie; slur; pitch names of lines and spaces; syllable names (diatonic, chromatic); accidentals; time-signatures; various simple measure-patterns met with; the signature of the nine common keys; the formation of the major scales with sharps and the major scales with flats; common words of expression—dynamics (p, pp, mp, f, ff, mf, cres., dim.), tempo (largo, lento, andante, rit., a tempo, moderato, allegro, allegretto), mood and style (maestoso, marcato, dolce, cantabile, con spirito, con grazia).

Grade VIII: Review of the work of Grade VII. Introduce the F clef, if needed. The nine common keys written in notation in both G and F clef. While the study of minor scales is not advised in this grade, a feeling for the tonality of the minor mode should be one of the outcomes of singing of songs in minor keys. Pupils should come to accept the minor mode as a natural form of expression and to be sensitive to those elements in the minor scale that distinguish it from the major.

Pupils in this grade should be encouraged to sing at sight, without syllables; hence they should learn to recognize intervals as they appear on the staff (an eye study)—seconds, thirds, fourths, etc.

Additional marks of expression as they arise in songs studied.

Recommended Teachers' Reference Books are listed in the Outline for Grade IX under "Music Theory."

(d) Listening to Music.

Pupils entering this division of the school will have learned much incidentally from the "singing" through the grades, and from previous training in definite music appreciation. The chief aim in the Intermediate School is "the development of *joy* in music, as something fine and beautiful, which will enrich their lives."

Music appreciation must really come "from within." The pupils in these grades must continue to be made familiar with good and beautiful music—both vocal and instrumental. Their "listening" ability must be developed. They should learn to know and to recognize at least ten great compositions each year—to name the composer, and to know the story of his life. By this means "composers become friends of children, and their works cherished possessions."

The music appreciation course of the earlier grades, particularly of Division I, should be reviewed and the "attainments" of the class brought up to the standard suggested.

Instruments of the Orchestra

Through the use of large coloured charts of instruments, and recordings of instrumental selections, it has been made possible to recognize the appearance and voice of certain of the instruments of the orchestra. This training may now be completed. In Division II the following instruments should have been heard and seen: flute, clarinet, violin, 'cello, double bass, oboe, trumphet, cornet, French horn, trombone, tuba, kettle drums, bass drum, snare or side drums, tambourine. To these may be added: piccolo, English horn, bassoon, contra bassoon, bass clarinet, celesta, cymbals, gong, triangle, castanets, tom-tom, chimes, bells, xylophone, harp, piano, harpsichord.

Proceed to consider instruments in combination (Record 20161, oboe, and piano, etc.). Review thoroughly the four "families" of instruments in a large symphony orchestra. (See Music Appreciation for Grade IV, Programmes of Studies for the Elementary School, bottom of page 245.)

Use recordings that have become *familiar* in preceding grades to discover *new beauties—new interests.* Should any pupil be able to play reasonably well on some instrument, let there be "individual" performance as well as performance from records. The desired outcome of such lessons is to encourage pupils to study some instrument.

The "Educational Catalogue of Victor Records for Home, School and College" will be given free at any music dealers, and is recommended for reference.

The following records are recommended for Grade VII:

20522—Individual tones of instruments.
Part I—Strings.
Part II—Wood-wind.

20523—Instruments.
Part III—Brass.
Part IV—Percussion.

20079—No. 1, Melodies for children.
No. 2, Melodies for children.

20164—No. 3, Melodies for children.
No. 4, Melodies for children.
(These are well-known tunes, each played by a characteristically suitable instrument.)

20319-20—"William Tell" Overture—Rossini.

20245 A—Anitra's Dance—Grieg.
B—In the Hall of the Mountain King—Grieg.

Grade VIII—Instrumental

19926—Instruments combined in groups of three.
20150—Instruments combined in different groups.
20161—Instruments combined—string and wood-wind.
20801—Instruments combined in operatic airs.
1193—Harpsichord.
19923—Review Vermeland—string quartette.
216501—Review (In a Monastery Garden and Minuet).
6505—Review (Dance Macabre).
9016—Pomp and Circumstance—Elgar.
1296—Hungarian Dance—Brahms.

"The Symphony Orchestra and its Instruments" is an invaluable book. It may be purchased in an album container from any dealer in the Victor product.

Questions:

Name the four sections of the orchestra and name the instruments belonging to each.

Name the instruments belonging to the string section. Etc,, etc.

The harp is always listed in the "string section" because it has strings, although it is not played with a bow. 20522 gives an example of the harp.

Use all recordings suggested, again and again. "Music that is known and remembered until it can be whistled or sung, or can be reviewed silently in the mind, becomes loved, and is heard with appreciation. So, play the phonograph before school, after school, at intermission, whenever the pupils will hear—as well as in the formal music period." The advice is given by Walter Damrosch to school teachers preparing the children for his wonderful concert broadcasts to schools.

Impressing "Mood" by "Mode" (Major-Minor): Review the suggestions given for this on page 253, Programme of Studies for Elementary School. Draw attention to changes of "mode" (major-minor) in the listening lessons. The records previously used may be used again for this purpose—6639; 20443; 1242; 20130; 20245; 20347.

Songs.

In Grades VII and VIII the Folk Song and the Art Song should be studied. The story of the Beginnings of Opera and Oratorio should be told.

(A) *The Folk Song*: "Songs of the People," handed down from generation to generation through the singing of mothers to their children. The characteristics of the people revealed in the very "texture"—wild, plaintive, gay, etc., according to the nature of the land from where it came.

Study background—the land, the people, their occupations and activities, as revealed in these songs.

"What is the song about?"

"What is its mood or spirit?"

(See Mrs. Fryberger's "Listening Lessons in Music Appreciation," pages 33 and 34, for an excellent specimen lesson on the song, "Old Folks at Home.")

Develop the creative interpretive ability of children—they themselves determining the way in which songs may be sung.

Apply "song-analysis" (see Division I, page 234) and trace the "growth" of the song in queston.

(B) *The Art Song*: A song in which the accompaniment is an equally important part, enriching by varied harmonies, embellishing with florid passages, at times, adding a kind of running commentary on the text. The Art Song is of two kinds:

1. "Strophic," when the same tune is repeated for each stanza.
2. "Through Composed," when the music is changed to suit the mood and sentiment of the poem.

Use Folk Songs and Art Songs in correlation with (a) nature and seasons; (b) Social Studies; (c) social programmes; (d) Art—associate music with pictures; ask students to illustrate their songs; (e) Literature; (f) Physical Education in rural school—through rhythmic play, and Rhythm Band in earlier grades. See also "Folk Dance" recordings on pages 7 and 10—Victor Educational Catalogue.

Give brief comments on the composer, the period and any special points to be noted in song construction. A picture of the composer of the instruments used and of the story setting will greatly help in adding interest. Use the time mostly for actual singing or listening to good recordings of these songs.

Use the phonograph too, to teach some of them.

The boys, particularly, will enjoy singing "Rolling Down to Rio," 120825; and the girls, "Billy Boy," 120825.

These Sea Chanteys and other songs should be used to integrate with the Social Studies or with Literature. Songs with band accompaniments will provide an occasional thrill for the boys and girls.

GRADE VII.

Folk Songs:

4023 Barbara Allen (English).
20152 Duke of Marlborough (French).
4083 Sally in our Alley, John Peel, etc., etc. (English).
263551 Alouette (French-Canadian).

Art Songs:

40219 The Little Sandman—Brahms.
4085 I Know a Bank (correlate with dramatics) (duet for sopranos).
120882 Hark, Hark the Lark; Who is Sylvia?—Schubert.

Songs with Band Accompaniment:

216511 O, Canada. National Anthem, etc., with chorus of 2,200 voices and band accompaniment.

GRADE VIII.

Folk Songs:

6822 Songs of the Volga Boatmen (Russian).
1338 La Paloma (Spanish).
263559 Sur Le Joli Vent (French-Canadian).
24244 Negro Spirituals.

Art Songs:

6924 Lo, There's the Gentle Lark—Bishop.
6563 The Two Grenadiers—Schumann.
1361 Knowest Thou That Dear Land—Thomas.
My Heart Ever Faithful—Bach.
Where'er You Walk—Handel.
216511 Songs with Band Accompaniment, 2,200 voices (Mixed Choir). It will provide an occasional thrill for girls and boys to sing *with this* record.

GRADE VIII.

Compare voices. Artist voices contrasted—their range and quality noted. Ask for the names of contemporary vocalists. Have records, if possible, for these. Study types of songs for different voices and for voices in combination.

Two-Part Songs:

24221.

Three-Part Songs:

24242.

Opera.

Opera consists of Drama, or acting, sung with orchestral accompaniment, and produced with suitable costume and scenery, the scenery depicting the locality and the setting, the costume depicting the times. Opera originated about the year 1600, through the efforts of a small group of men—two of whom were musicians—to revive Greek drama.

"Daphne," the first attempt, was so successful that "Euridice," the first real opera, was composed to celebrate the wedding of Henry IV to Maria de Medici. The early Italian operas attached most importance to vocal technique, with little attention to story, and still less to orchestration.

The operas by the great German composer, Wagner (1813-1883), show that equal importance was given to text, drama, and music. A three-fold perfection was the ideal.

An instrumental prelude, or Overture (which foreshadows events to come), choral numbers, solos, duets, trios, quartets, sometimes a sextette (as in "Lucia"), carry story forward, often in a Recitative, an Aria (song), or a Chant.

Simple types of opera, such as "Martha," should be used at first. Pupils should be encouraged to read the story books about opera which ought to find a place in every school library.

Pupils should also be encouraged to attend performances of opera or oratorio when such are given, the teacher preparing them by commenting on the work and the composer, and, either by playing or by record, familiarizing them with the main themes.

OPERAS:

Grade VII:

22175 } Selections from
22176 } Hansel and Gretel (Humperdinck).
35849 Hiawatha's Childhood.
8452 Even Bravest Hearts (Faust).
19783 The Soldiers' Chorus (Faust).
20127 Anvil Chorus (Il Trovatore).
6123
or
1188 Last Rose of Summer (Martha).

Grade VIII:

The story of "Lohengrin"—the Swan Knight might be used. Refer to the story of King Arthur and His Knights of the Round Table; also to Tennyson's "Sir Galahad."

9005 The Bridal Chorus (Lohengrin).
(Pupils sometimes could join in singing this well-known chorus.)
8042 Miserere (Il Trovatore).
10012 Sextette (Lucia), also Quartet from Rigoletto.
7383 Cara Nome (Rigoletto).
35940 Gems from Aida.
1747 Barcarolle (Tales of Hoffman).
One Fine Day (Madame Butterfly).
35433 Gems from Traviata.

(B) *Oratorio*: Drama set to music with orchestral accompaniment. It is produced without costumes, scenery or acting. (Mendelssohn's "Elijah" has had occasional performances with acting, scenery and costuming.)

In December, 1936, Elgar's oratorio, "The Kingdom," was produced for the first time with dramatic version in London, England. This is rather "reverting to type" because at first oratorio, like opera, was produced in that way.

Oratorio originated in the oratory of the church in Rome (hence its name). It is usually found on a scriptural theme, and is always sacred in character.

The year 1600 was an eventful one for the history of music. Both opera and oratorio were born in that year. The "concert form"

of oratorio was perfected in England by George F. Handel, a German who adopted England as his home, and became a naturalized subject. His best known oratorio is "The Messiah," composed in 1741 (in a little less than two weeks). Other well-known and well-loved oratorios by Handel are "Judas Maccabaeus" and "Sampson". These are still sung today, almost two hundred years after they were composed.

Oratorios.

Grade VII:

6555 He Shall Feed His Flock (The Messiah).
C2489 Hallelujah Chorus (The Messiah).
120320 I Know That My Redeemer Liveth (The Messiah).

Grade VIII:

20620 How Lovely Are the Messengers (St. Paul).
Lift Thine Eyes (Elijah).
9424-29 The Crucifixion (The Messiah).
9019 All We Like Sheep (The Messiah).
9019 And With His Stripes (The Messiah).
Angels Ever Bright and Fair (Theodora).
With Verdure Clad (Creation).

Other beautiful sacred solos:

35856 Hear My Prayer—Mendelssohn.
22993 My Heart Ever Faithful—Bach.
Jesu, Joy of Man's Desiring—Bach.
120817 Hear Ye Israel (Elijah).

In the thirty-fifth year book of the National Society for the Study of Education, Part II, the following findings are given: "Listening to Music is a real art, a human skill, demanding both training and practice. . . . Listening now considered as definite a musical activity as performing or composing. . . . Because the trained ear is a pre-requisite of every musical experience. . . . All progressive schools and colleges are now offering "listening lessons," courses in Music Literature, and Music Appreciation lessons. . . . We do not deny that in the past a few musical listeners have been born and not made, and that many more have made themselves. We simply ask, 'What about the music lovers that might have been?' Our grandparents needed not listening lessons, it is true, neither did they need electric light bulbs or automobile tires. . . . It would be stupid to let our children get years behind in their enjoyment of music or run the risk of their missing it entirely, just for lack of a little timely training."

The following sensible, thoughtful words by Miss Lillian Baldwin, Music Supervisor, Cleveland Schools, Ohio, are worthy of mention.

"A few marching orders to teachers in her class may be given:

(1) Know your music.
(2) Know your child; fit your selection to your listener.
(3) Never lay down the law. In matters of taste there is no law. Forget the teacher-pupil relationship, and be the child's companion on a splendid venture."

It is earnestly urged that books about music be added to the school library, and pupils be encouraged to read these books. See Bibliography, Elementary School Course, Division II.

A list of Teachers' Reference Books relating to this phase of the work is given in the outline for Grade IX. The teacher should see that one or two of these reference books are placed in the school library.

It is suggested that in schools where little equipment can be provided for Music Appreciation, the teacher use the "Music Appreciation Album for Upper Grades" put out by the Victor Phonograph Co. This album contains seven double records, a book of instruction and cards illustrating different musical instruments. The approximate price is $7.50

Minimum Attainments for Grades VII and VIII.

1. The ability by the end of Grade VIII to sing well and with enjoyment a repertory of at least twenty-five unison and part songs.
2. Ability on the part of the pupil to use his voice intelligently within its limited scope.
3. Ability to sing, at sight, using words, a unison song of hymn-tune grade or, using syllables, part-songs of hymn-tune degree of diffiiculty.
4. Ability of at least thirty per cent. of pupils to sing, individually, at sight, music sung by the class as a whole.
5. Knowledge of the essential facts of elementary theory sufficient to enable seventy-five per cent. of the pupils to give a correct explanation of any notational features contained in the songs of average difficulty recommended for these grades.
6. Ability to appreciate the charm of design in songs sung and to give an account of the salient features of structure in a standard composition after a few hearings of it.
7. Ability to recognize, to name and give the composer's name of, at least twenty standard compositions which have become familiar through repeated hearings.
8. A growing desire on the part of pupils to participate in, and to listen to worthwhile music.

GRADE IX

Note.—*Teachers who offer this course are required to read carefully the outline of the course in Music in the new "Programme for the Elementary School." The methods there presented, and the approach to music theory and music appreciation there suggested, cannot fail to be helpful to all teachers of school music.*

Aims of the Course.

For general aims the teacher is referred to General Introduction to Music in the Intermediate School.

The specific aims of the course are to increase the pupils' pleasure in song-singing; to preserve and develop their voices during the period of change; to develop their harmonic sense through part-singing; to strengthen their ability to read music; and to provide suitable material and conditions for listening to music of a type that is beyond their power to reproduce.

The chief aim of the course is to enable pupils to find enjoyment in music, both in school and in after life. The course does not aim to produce professional musicians.

Minimum Requirements.

The course in Music comprises the following parts, *either* of which parts is accepted as a full music option:

I.—*General Music*—

(a) Chorus Practice, including Voice Culture (2 periods).

(b) Ear Training and Sight-Singing (1 period).

(c) Elementary Theory (½ period).

(d) Music Appreciation (½ period).

II.—*Instrumental Music*—

In this, clearance in the Music option may be obtained in *either* of the following two fields:

1. Extra-mural music study in piano, violin, violoncello, voice, organ. The accompanying schedule shows the standing required.
2. Membership in a school orchestra or band meeting the requirements as shown below.

In school programmes where four periods are assigned to Choral Music, two periods should be given to Part (a), one period to Part (b), and one period to Parts (c) and (d) alternately. (These parts are shown above in parentheses.) If less time is available for Music, these numbers will be decreased proportionately.

Parts (a) and (b) and (d) constitute the gist of the course and are to be closely associated.

The requirement in Choral Music is that pupils master two or three unison songs a month, or one or two part-songs a month. *The year's work should include fifteen unison songs and ten part-songs.*

Part (c) is important, but distinctly subsidiary to Parts (a), (b) and (d).

Part (c) is to be based on the songs that are studied, and in a general way kept within the limits of the work required for those songs.

Part (d) will necessitate some outlay for records. A number of the records listed in the outline for Part (d) are recommended also for Music Appreciation in the elementary grades. (See the outline for Music in the "Programme for the Elementary School".) In the smaller schools, Grade IX may be combined with lower grades for Music Appreciation. If no equipment has been provided for Part (d), it will be necessary that the teacher give additional time to Parts (a) and (b).

Part 2 of the Instrumental Music is the concern of schools where there is a school orchestra or a school band. Those selecting Part I of the Instrumental Music option will also be required to take Part (d) of the General Music Course. Those selecting Part 2 of the Instrumental Music option will also be required to take Parts (c) and (d) of the General Music Course.

In schools where there is a school orchestra or a school band, pupils who perform regularly on one musical instrument or more may be granted Grade IX standing in Music, provided the following requirements have been met:

(1) The orchestra or band must be under the direction or supervision of the school.

(2) The members must meet regularly for practice under a competent conductor, and the practice sessions must occupy at least two hours a week throughout the school year.

(3) It must master a repertory of at least ten selections during the year, these to be of medium difficulty, of good quality, and of different types.

The types contained in the following folios or books will be regarded as satisfactory:

For Orchestras

Progressive Orchestra Edition, Grade I—Carl Fisher, 46 Cooper Square, New York.

Temple Orchestra Collection—J. W. Pepper and Son, 33rd and Walnut Streets, Philadelphia.

Champion Orchestra Collection—J. W. Pepper and Son.

For Bands

Beginner's Band Book—J. W. Jenkins and Sons, Kansas City, Mo.

Educator Band Books—C. L. Barnhouse, Conservatory Building, Oskaloosa, Ia.

U. T. D. Band Books—John Church Co., Cincinnati, Ohio.

An activity that may be introduced to *alternate with* the Chorus Practice period is the "School Pipe Band." The making and the decorating of the pipes is essentially an Art problem, and this work should be done during the Art period. The tuning and playing of the pipes is a musical activity which may be introduced to alternate with the chorus practice.

For "School Pipe Bands"

Pipe bands are a comparatively new activity in Canada. The Board of Education (England) in Pamphlet No. 95 states the following: "It is a delightful form of practical and musical education. Class work is made exceedingly interesting, and can be quite easily co-ordinated with the normal musical work of the school."

The advantages to be derived from the making and playing of musical pipes are many:

1. The charm of adventure—the adventure of creating something with a beautiful tone.
2. Valuable ear-training unconsciously and delightfully obtained through the critical *tuning* of the pipe, step by step, and building up its scale.
3. Music-reading improved as the pipe-playing is proceeded with from the printed tunes.
4. Inventiveness developed through playing tune "by ear," and through creating new tunes, which can charm through their

(a) balance of phrase,

(b) melodic freshness.

5. As an accompaniment to folk dancing and folk singing, spontaneity can be furthered and music oftener takes its rightful place as an expression of joy and happiness.

6. This project offers an interesting correlation with the Arts course, the making and decorating of the pipes being essentially an Art problem.

Pipe playing must commend itself to all who consider its possibilities as an incentive to Music Appreciation. The work also proceeds hand in hand with choral singing and ear training.

The beauty of the *tone* of the pipes must result in appreciation of true tone-beauty: the raucus tones of some instruments sound repellent after the "fairy-like" pure tones of the pipes. The type of music played on the pipes will be a training in true music-evaluation.

As no great aptitude or previous knowledge is necessary to begin its study, *anyone* may feel encouraged to attempt to make and play successfully these lovely elf-like-toned instruments.

The probable and desired outcome will be to play a wind instrument in an orchestra.

Supplies of pipes, and books of pipe music, may be had at the School Book Branch, Department of Education, Edmonton, Alberta.

Suggested Reference Books:

Making Musical Pipes (J. Halliday) 60c
or
The Piper's Guild Handbook (Margaret James), J. B. Cramer 75c
How to Make Bamboo Pipes (Margaret James) (a chart 30″×15″ to pin on the workroom wall) 10c
Piper's Tunes (arranged by Margaret James) 75c
Folk Dance Tune (arranged by Margaret James) 45c
Duets and Trios (arranged by Edgar H. Hunt) 45c
Elizabeth Ayres, arranged as trios (Edgar H. Hunt) 65c

PRIVATE INSTRUCTION IN MUSIC

While school music includes class singing and membership in a band or orchestra, the Music option is intended to include, in addition, voice training and instruction on the violin, piano or organ, as carried on by private teachers and tested by regular examining boards. This means that any student carrying on the study of music privately may present the proper certificate in any of the branches of music mentioned above as one of the three options required by the Grade IX Programme. Teachers of Grade IX classes are urged to give this information to their students, that the work of the year may be lightened to the extent of one option in all cases where the candidate expects to be able to present the music certificate. Since four periods are normally given to Music, it is expected that these will be available as study periods for pupils carrying this subject by private tuition.

Certificates for standing in Grade IX Music.

Certificates of the following Examining Boards, issued for the grade specified in each case, will be accepted by the Department of Education as the equivalent of full grade IX standing in Music:

Examining Boards	Intermediate School Grade IX Practical
University of Toronto Toronto Conservatory	Grade V
Western Board of Music	Grade IV
McGill University McGill Conservatorium	Junior Grade
Associated Board of Royal Schools	Grade IV

For a more comprehensive statement regarding credit for diplomas in Music, see the Programme of Studies for the High School, Bulletin II, page 41.

OUTLINE OF THE COURSE

Note.—In many rural schools it will be impossible to carry out the complete scheme as outlined, but in no case is it impossible to offer the less specialized parts of the outline.

1.—CHORUS PRACTICE

Song-singing.

Song-singing should include the study and performance of unison songs, part songs, and choruses, comprising folk-songs, classical songs, songs with descant, and modern songs. Rounds and canons should also be used; and easy cantatas may be introduced, if desired. The introduction of three and four-part singing (S.A.B. and S.A.T.B.) in this grade will naturally depend upon the condition of the boys' voices and the pupils' sight-reading ability, and must be left to the descretion of the instructor. It should not be stressed unduly. In the case of unchanged voices, no pupil, unless possessing a natural low voice, should be regularly assigned to an alto part. Unison singing must receive attention.

Recommended Song Books

"Progressive Music Readers," Books III and IV.
"Cantemus," Part I.
"Halcyon Song Book."
"Music for Many Lands and Peoples." (Price, $1.52.)
"Twice Fifty-Five."

Note.—*Any of the books listed in this outline may be ordered from the School Book Branch, Department of Education.*

It is recommended that the "Progressive Music Readers," Book III, and "Cantemus" be used in schools where the instruction in Music has not previously been continuous, or productive of satisfactory attainment. Where the previous instruction has been sound and effective, the "Progressive Music Readers," Book IV, and

"Cantemus" may be used, *or* the "Halcyon Song Book" and "Cantemus." "Twice Fifty-Five" is recommended as a good collection of well-known songs for community singing.

Every school should acquire a repertoire of modern unison songs and part songs; also of duets and trios. *A comprehensive list of such musical selections, including also cantatas and operettas, may be obtained if desired from the Department of Education.*

The following firms are specialists in school music and will supply on application graded lists suitable for all requirements:

Arnold, 41 Maddoz Street, London, W.I.
Bayley & Ferguson, 54 Queen Street, Glasgow.
Cramer & Co., 139 New Bond Street, London, W.I.
Curwen & Sons, 24 Berners Street, London, W.I.
Deane & Sons, Year Book Press, 32 Museum St., London, W.C.I.
Novello & Co., 160 Wardour Street, London, W.I. (H. W. Gray Co., 159 East 48th Street, New York, agents).
Oxford University Press; Canadian Agents: Anglo-Canadian Music Co., 144 Victoria Street, Toronto.
Theodore Presser Co., 1712 Chestnut St., Philadelphia.
Educational Music Bureau Inc., 434 S. Wabash Ave., Chicago.
Lyon and Healy, Wabash Ave., Chicago.
C. C. Birchard & Co., 221 Columbus Ave., Boston.
W. J. Gage & Co., Ltd., Toronto, Ont.
J. M. Dent & Sons, Ltd., Toronto, Ont.

Voice Culture.

The teacher is advised to read "General Introduction" to "Music in the Intermediate School" under this heading.

The aim is to develop a correctly produced, light and easy-flowing tone, with accuracy of pitch. All forcing and straining of the voice must be avoided, special care being given to boys whose voices show signs of changing or "breaking." All voices, in fact, need to be under observation at all times. Diction must receive careful attention. In addition to vocalizing phrases from the songs being studied, other suitable voice exercises may be used.

Note.—Some of the pupils who have had no previous training in music, particularly vocal music, will not be able to derive much benefit from this course. *At the beginning of the school year, the teacher should give such pupils a simple voice and sight-singing test, and advise them in accordance with the results.*

The following book is recommended to teachers for exercises in *voice production*: "The School of Sight Singing"; Concone—Schrimer's Library, Vol. 245. (Price $1.25.)

Teachers will also find much useful material relating to *voice culture* in the following three books:

"School Choir Training"; Margaret Nicholls—Novello's Elementary Music Manuals, No. 9.

"Class Singing for Schools"; C. V. Stanford—No. 2, Educational Library; Stainer & Bell, Ltd., 58 Berners St., London, W.I.

"The Boy's Changing Voice"; Mellalieu—Oxford University Press. Apply to the Anglo-Canadian Music Co., Toronto. (Price 35c.)

II.—EAR-TRAINING AND SIGHT-SINGING

See General Introduction under this heading.

Ear-training.

(1) So-fa names to be applied to short, easy phrases from the major mode, after they have been played or sung by the teacher.

(2) Short phrases from the major mode, sung or played by the teacher, to be written in staff notation in music dictation books.

Although song-singing forms the basis of the work for this grade, the importance of ear-training cannot be over-estimated. Writing from dictation should be continued. Special points of interest (e.g., imitations and sequences) connected with the structure of the music sung or played should also be noted. Simple melody-making may be introduced. At first, a short phrase is given by the teacher, to which the pupils add another phrase. In later stages of this work it may be possible to have the pupils add three phrases, making a four-phrase melody.

Sight-singing.

Singing at sight easy songs and other suitable music.

For this work the following books are recommended in addition to the song book mentioned above: "777 Exercises in Sight-Singing," Books II and III.

III.—MUSIC THEORY

The theory to be taught in connection with Choral Music is such as is necessary for performing with musical understanding and correctness the selections that are chosen.

The following matters should receive attention:

(1) The two clefs; notes and rests (all values); time signatures; key signatures; accent and rhythm.

(2) The major and minor scales, as the material from which music is made. Practice in writing the scales in different keys.

(3) The marks of expression, and some of the common musical terms.

If circumstances permit, the terms *tonic, dominant,* etc., may be introduced, and the intervals and their inversions may be explained.

The following books are recommended to the teacher:

"Rudiments of Musical Knowledge"; Chas. W. Pearce—Boosey & Hawes, Toronto.

"Rudiments of Music"; Stewart Macpherson—Jos. Williams, Ltd., 32 Portland St. W., London, England.

"School Music Handbook"—Cundiff & Dykema (C. C. Birchard Co., 221 Columbus Ave., Boston).

IV.—MUSIC APPRECIATION

Teacher is strongly recommended to read "General Introduction" to Music in the Intermediate School under this heading.

Musical culture through listening lessons is the aim of the Course. Musical artists, or advanced piano students, may be called upon to perform the supporting music for this course, but more

can be accomplished through the medium of phonographic records. The Victor educational and other records are especially recommended for use in this study.

TOPICAL OUTLINE

Folk-songs.

Folk-songs of various peoples; their form and national characteristics. The influence of geographical and political conditions affecting the quality of a nation's creative music.

The true *folk-song* has no traceable definite origin. Folk-songs arose as a spontaneous expression in music of some incident in the life of the common people. They are for this reason sometimes termed "the wild flowers" of music. Many are traditional, their origin lying far back of the time when a system of musical notation began to be developed. Their rhythm naturally followed that of the strophic poetry of the time and the simple metrical steps of the folk dances. They were passed down "by word of mouth" from generation to generation, until the time came when they might be registered in notation.

The Art Song.

This is definitely a composed song, and the product of musical cultivation and inspiration. There are two forms: the *strophic* and the *through-composed.* In the strophic, each stanza of the words carries the same melody, though the accompaniment may be different. In the through-composed, the progression of changing sentiments is accompanied throughout by an appropriate and enhancing musical figuration. The instrumental accompaniment is closely integregated with the song, and becomes a more important feature than in the case of the strophic art song or the folk-song.

The Opera.

Definition of the *opera,* and explanation of its chief features, including the *overture, recitative, aria, chorus, intermezzo, duet, trio, quartet.*

The story of the rise of the opera about the year 1600. The history of the opera need not be followed through this grade, but records illustrating the different features, periods and composers should be used. See the Chapter on the opera, with suggested records, in "What We Hear in Music," by Anne Shaw Faulkner (Victor Phonograph Co.).

The Oratorio.

The *oratorio* defined. The story of the earliest experiments in oratorio about the year 1600.

The Mass and Sacred Cantata.

A brief explanation.

The Symphony Orchestra.

The orchestral sections or "choirs"; the different instruments in each section, illustrated by sound (records) and by picture. See "Instruments of the Orchestra" (Victor Phonograph Co., Montreal).

Textbook.

No textbook is precribed for Music Appreciation. *The teacher should see that one or two reference books are placed in the school library. Problems and projects relating to the history of music and the biographies of great masters may be assigned to members of the class, who will search for their own material.*

It is suggested that in schools where but little equipment can be provided for Music Appreciation, the teacher use the "Music Appreciation Album for Upper Grades," put out by the Victor Phonograph Co. This album contains seven double records, a book of instructions, and cards illustrating different musical instruments. The approximate price is $7.50.

To supplement this, where funds are available, the course included in "Students' Workbook and Teachers' Handbook in Music Appreciation" (Clark, Irwin & Co.), which is listed below, is suggested.

Teacher's Reference Books

	Approx. Price
"What We Hear In Music"; Faulkner-Victor Phonograph Co., Montreal	$2.00
"Teaching Music from an Appreciative Basis"; Mohler—C. C. Birchard. 221 Columbus Ave., Boston, Mass.	2.00
"Music Appreciation Taught by Means of the Gramaphone"; Stone—Scott, Foreman & Co., Chicago	.75
"First Lessons in Music Appreciation"; Mayne—J. M. Dent & Sons, Toronto	.85
"Listening Lessons in Music"; Fryberger—Silver Burdett & Co., 221 Columbus Ave., Boston	1.60
"Students' Workbook" and "Teachers' Handbook in Music Appreciation"—Clarke, Irwin & Co., 86 Richmond St. West, Toronto.	
"Music Appreciation for the Junior High School"; Glen and Lowry—Silver Burdett & Co.	
"Music Appreciation for Children"—Victor.	

Recommended Phonograph Records

Folk-songs.

English.

1238 Drink to Me Only with Thine Eyes.
19961 D'ye Ken John Peel?

Russian.

6822 Volga Boat Song.

Scotch.

4083 Ye Banks and Braes.
4083 Scots Wha Hae.

Gaelic.

216521 O My Boatman!

Irish.

1238 Believe Me If All Those Endearing Young Charms.
4186 The Londonderry Air.
35878 Songs of Ireland.

Welsh.

1558 All Through the Night.

Italian.

1204 Santa Lucia.
1099 O Sole Mio.

French.

20152 The Duke of Marlborough.

French-Canadian. (See Victor special French-Canadian catalogue.) Alouette.

German.

87021 True Love.
88547 The Lorelei.

Spanish.

64042 Linda Mia.

Norwegian.

65929 To Norway, Mother of the Brave.

Art Songs.

Schubert.

120882 Hark, Hark, the Lark; Who is Sylvia?
6927 Serenade.
7657 The Erl King.

Grieg.

6924 Solveig's Song.

Schumann.

6563 The Two Grenadiers.
15145 (Brunswick Recording) The Nut Tree.
64519 I'll Not Complain.

Brahms

1756 Cradle Song.
8763 True Love.

Robert Franz.

88542 In Autumn.

Richard Strauss.

1726 All Souls' Day.

Dvorak.

87051 Songs My Mother Taught Me.

Opera.

7770 Celeste Aida (Verdi).
8105 Home to Our Moutain—duet (Verdi).
35940 Gems from "Aida" (Verdi).
8091 Habanera, from "Carmen" (Bizet).
8124 Toreador (Bizet).
6563 O Star of Eve! (Wagner).
1616 La Donna E Mobile (Verdi).

Opera Chorus.

20127 Anvil Chorus (Verdi).
20127 Pilgrims' Chorus (Wagner).

Sacred Vocal Music.

Oratorio Chorus.

9125 And the Glory of the Lord (Handel).
35767 Hallelujah Chorus (Handel).
130804 We Bow Our Heads (Bach).
9018 Behold the Lamb of God; Glory to God (Handel).

Cantata.

35856 Hear My Prayer (Mendelssohn).

Mass.

35768 Gloria from the Twelfth Mass (Mozart).

Oratorio Solo.

120817 Hear Ye Israel from "Elijah" (Mendelssohn).

Orchestra.

1312 Ballet Music from "Rosamund" (Schubert).
9059-60 Overature from "Tannhauser" (Wagner).
35924 Overture from "Raymod" (Thomas).
20011 Intermezzo from "Cavalleria Rusticana" (Mascagni).
35976 Intermezzo from "Jewels of the Madonna" (Wolf-Ferrari).

Orchestral Suites.

8662-4 Nut Cracker Suite (Tschaikowsky).
11834 and 11835 Peer Gynt (Grieg).
7200-2 Carnival of the Animals (Saint-Saens).

Symphonies.

6663-4-5 Unfinished Symphony (Schubert).
6725-30 Symphony in D Minor (César Franck).
9029-32 Symphony No. 5 (Beethoven).

Orchestra—Miscellaneous.

6505 Danse Macabre (Saint-Saens).
9009 Henry VIII Dances (German).
8542-8545 Excerpts from "Die Walkure."
20443 Narcissus (Nevin).
6579 Flight of the Bumble-Bee (Rimsky-Korsakov).
8702 Festival of Bagdad; Young Prince and the Young Princess (Rimsky-Korsakov).

Solo Instrumental.

Piano.

8735-7836 Sonata in C Sharp Minor (Moonlight) (Beethoven).

Violin.

6691 Rondo (Schubert).

Organ.

6648 Largo (Handel).

Violoncello.

1143 The Swan (Saint-Saens).
1143 Moment Musicale (Schubert).

Note.—Certain records of the foregoing list have been given new numbers in the recent catalogue of the Victor Company.

Information relating to numbers which cannot be found in the new catalogue may be obtained by writing to the Victor Phonograph Company, Camden, New Jersey.

Bibliography

1. Music in the Junior High School—Karl W. Gehrkens (C. C. Birchard Co., Boston).
2. Music in the Junior High School—McConathy et al (W. J. Gage & Co., Toronto).
3. The Psychology of School Music Teaching—Mursell & Glenn (W. J. Gage and Co., Toronto).
4. Principles of Musical Education—Mursell (Macmillan, Toronto).
5. Music Education—Thirty-fifth Year book, Part II (National Society for the Study of Education, Public School Publishing Co., Bloomington, Ill., 1936).
6. Yearbook, Music Educators National Conference, 64 East Jackson Blvd., Chicago, Ill.
7. Music Educators Journal (5 issues yearly), 64 East Jackson Blvd., Chicago.
8. Music in the Schools—Monthly Magazine (Novello & Co., London, Eng.).
9. Music Integration in the Junior High School—Lilla B. Pitts (C. C. Birchard Co., Boston).
10. Creative School Music—Fox & Hopkins (W. J. Gage & Co.).
11. Music in Rural Education—McConathy et al (W. J. Gage & Co., Toronto).
12. Three Short Talks on Singing—H. P. Greene (Western Music Co., Vancouver).

FARM AND HOME ACCOUNTING

GRADES VII AND VIII

The Bookkeeping in Grades VII and VIII must necessarily be simple. The purpose of this course will be to make the pupil conscious of the general principle behind the recording of simple business transactions in buying and selling which come within his experience. It should influence him to keep systematically a record of the transactions in which he is personally involved, as a party to home management or as a participant in some club feature, such as feeding a baby-beef animal, a swine venture or other interest involving exchange value. The idea of debit and credit can be taught so that its elementary meaning becomes fairly clear. Simple business forms such as an account, an invoice, a statement, a receipt, an order, a cheque, a money order, a deposit slip, a financial statement, credit balance and debit balance should be taught. An elementary discussion of buying, selling and credit should be conducted, but the subject-matter should be kept within the range of experience of the pupil.

This course may be offered either to Grade VII or to Grade VIII pupils, but preferably to the latter. In a school with a small enrolment the pupils of both grades may be combined for instruction and work in this subject. The course should be correlated with the course in Arithmetic, and should also, if possible, be motivated by some special activity of the pupil group, such as that of a school or community club, or other local project.

In the booklet entitled *Farm and Home Accounting Exercises for Grades VII and VIII,* exercises will be for *six illustrative projects.* These represent a year's work in amount and level of difficulty; but they may be freely adapted or modified by the teacher to meet the special needs of the class. The booklet, together with a supply of ruled accounting forms sufficient for one pupil, may be had from the School-Book Branch of the Department of Education.

TEACHER'S REFERENCE:

Bookkeeping for Immediate Use—Kirk, Street and Odell (John C. Winston & Co.).

COMMUNITY ECONOMICS

This is a new course, taking the place of Junior Business and Elementary Bookkeeping.

The course is based on about ten projects, such as the following: Our Club, Our Home, Our Farm, Our Automobile, Our Store, Our School, etc. From these projects the pupil or the class will select, in consultation with the teacher, six projects for the year's work.

Each of the projects will have appropriate correlation with Arithmetic, Social Studies, Home Economics and General Shop.

TYPEWRITING

GRADES VII, VIII AND IX

Long-established practice has, until recently, placed typewriting in the commercial high school, where it was taught as a skill to pupils 14 to 18 years of age, almost exclusively for vocational purposes. Of recent years, however, the lowered cost of typewriters and the increasingly widespread use of them have emphasized the importance of the subject for its exploratory value and for its personal usefulness. Mainly because the boys and girls of the intermediate school are too young to need or to be interested in vocational training, the course in Typewriting in Grades VII, VIII and IX will stress the general educative value of the work, while endeavoring at the same time to provide a substantial outcome in terms of personally useful skill. The unsatisfactory results which too frequently have attended teaching in these grades come partly from failure to appreciate the implications of these objectives as well as from the employment of the traditional manipulative methods used in vocational courses.

If typewriting in the Intermediate School is to be more than mere key stroking and the copying of exercises, if it is to be a means of helping the child to become a better student and a more thoughtful citizen, it must provide him with a useful tool for self-expression in his personal, home, club and school activities. English

activities should be correlated with those of typewriting, whether it be in composing stories or letters or in preparing notes, outlines or reports. Those phases of typewriting should be stressed which can be used in the daily life and work of the pupils.

During the first stages, the teacher will emphasize "form" or technique of performance; then, a smooth, reasonable speed; and finally, accuracy of the typed product. It is to be remembered that any motion or act which has been learned and performed at a given rate becomes, psychologically, a different motion or act when the rate is slowed down. Accordingly, it is desirable that a skill-motion, such as typewriting, should be learned at a rate at which it will be used in functional practice, or as nearly at that rate as due regard for technique or form will permit. A fundamental training which results in fast fluent stroking coupled with good technique is bound to result in accurate copy.

It is of the first importance that the teacher devise satisfactory records of the students' attainment and progress and adequate methods of analysing special difficulties and disabilities of individual students. Progress charts, graphs, and other motivational devices will be found useful in stimulating interest and sustained effort. Anything that keeps a student in competition with himself will be found worth while.

The typewriting room should be equipped with well-serviced machines in good state of repair. Key-board wall-charts, diagrams of parts of the typewriter, enlarged photographs showing correct posture, can be used to advantage. Typewriter desks should be sturdily built, with a height of from 26 to 30 inches, measured from the top of the table to the floor. Wooden chairs, height 16½ to 18½ inches, are best. Each room should also have an unabridged, standard dictionary.

Textbook: *Complete Typewriting Course,* Part 1; Stuart—Copp Clark Co.

Minimum Requirements for Intermediate School

TYPEWRITING:

First Year:

1. Reasonable mastery of the alphabetical key-board by touch, with rhythm, and fingering technique and the correct manipulating of the operative parts of the machine.
2. Satisfactory completion with respect to form, and accuracy of at least *the first seven blocks, pages* 1-36, of the authorized textbook.
3. Attainment of a copying speed of at least *ten to fifteen* net words a minute (as measured under International Contest Rules) on each of three tests varying from five to ten minutes in length, with not more than one or two per cent of error.
4. Satisfactory completion of a reasonable number of supplementary exercises selected from the students' class-work in other subjects.

Second Year:

1. Review of selected exercises from the first year.

2. Satisfactory completion with respect to form and accuracy of at least *blocks* 7 *to* 13 of the authorized textbook.
3. Attainment of a copying speed of at least *fifteen to twenty* net words a minute (as measured under International Contest Rules) on each of three tests varying from five to ten minutes in length, with not more than one or two per cent of error.
4. As in part 4 of the first year.

Third Year:

1. Review of selected exercises from the first and second years.
2. Satisfactory completion of *blocks* 13 *to* 20 of the authorized textbook.
3. Attainment of a copying speed of at least *twenty to twenty-five* net words a minute (as measured under International Contest Rules) on each of three tests varying from five to ten minutes in length, with not more than one or two per cent of error.
4. As in part 4 of the first year.

NOTE.—Some students will be beginning Typewriting in Grade IX. These students should be expected to attain a higher standard in their first year of Typewriting than that expected of Grade VII students.

Teachers' Reference Books:

My Typewriter and I: Merrick, Bown and Dvorak—Gage and Co. It is recommended that every teacher of Typewriting have a copy of this book for use in the classroom.
Typewriting Behaviour: Dvorak, Merrick, Dealey and Ford—Gage and Co.
Teach Your Fingers to Spell: Craig and Leslie—Gregg.
Principles and Techniques for Directing and Learning of Typewriting: Odell and Stuart—Copp Clark and Co.
Stuart Objective Tests in Typewriting, Series A—Copp Clark and Co.
Carstens Typewriting Charts—Gregg.
Typewriting Error Analysis Chart: Raymond and Adams—Gregg.
The Technique of Teaching Typewriting: Jane Clem—Gregg.
The Psychology of Skill: W. F. Book—Gregg.

ORAL FRENCH

GRADE IX

The course in oral French is planned primarily for districts having a French-speaking teacher. It aims to give pupils the advantage of a year in oral French, without requiring them to take an academic course and prepare for a written examination, which would necessarily demand a more rapid advance, and a more conscious use of the grammatical forms and idioms of the language.

To teach this course successfully, the teacher requires a two-fold equipment: (1) the ability to converse freely in the language; and (2) a clear conception of the principles underlying language training. A French-speaking teacher may find himself unable to secure good results through failure to recognize the best methods of

developing language ability. An English-speaking teacher may have a clear conception of the psychological principles involved in skilful teaching, but may be incapacitated by lack of facility in the language.

The course as planned will be actively oral. Reading and writing will be introduced only as aids to assist in the active acquirment of the language. The ear, the tongue, and the eye must be trained before any writing is done. The natural method of childhood should be kept in mind. The ear is carefully trained; then the tongue attempts the sounds; later the eye sees and reads them; and still later the pupil writes what he has heard and said and seen. As this training advances, the mind must always comprehend the language forms presented. The teacher must display good judgment in presenting the material. Monotony is to be avoided. Through skilfully planned repetition and carefully directed drill, the pupil must be led to express himself within the limits of the vocabulary he has acquired.

The Camerlynck text has been chosen for this course because it contains a suitable body of carefully graded language material. Teachers should not attempt to cover the whole book in one year. *The course should be kept very flexible.* It is expected that singing, dramatics, games and various forms of language drill will be introduced by way of stimulating interest and affording a maximum of practice. The course may be taught in a variety of ways, according to the special ability of the teacher. One teacher might specialize on conversation, another on dramatic work, another on singing, another on games, and still another on a combination of two or more of these types of work. But it is not intended that an individual teacher shall make use of all these devices for maintaining interest. Indeed an extremely skilful teacher can maintain the enthusiasm of the class without any of these more formal aids, as the acquisition of the power of expression through the forms of a new language is exciting enough to keep the ordinary class alert.

It is recommended that classes in this course be limited to twenty pupils; that pupils of less than average intelligence be not admitted to the course; and that no teacher attempt the course who is not properly qualified to use French as the language of instruction.

Special Notice to Teachers.

1. *Teachers are warned against the mistake of supposing that this course is substantially the same as French* 1 *of the High School Programme.* The two are quite different. This is a course in *oral* French: a course in which the training is preponderantly that of the *ear and tongue,* and only to a small extent that of the eye and hand. The High School course—as it works out in practice—is a course in which the reading of French and the writing of it according to grammatical rules are the main objectives. *This course gives no credit for French* 1. Students who complete it and continue the subject in the High School will still be required to take French 1, which is a beginner's course.

2. Some teachers who offer this course prefer to omit the reading and writing of French entirely, making the course purely one of ear-and-tongue training. *Nothing that has been suggested in the outline above stands in the way of this procedure.* In fact, there

are strong reasons for the use of this procedure in beginner's classes. (See "The Principles of Language Study," listed below.)

The course is to be kept flexible. It will not, therefore, be necessary that all teachers approach it the same way. The one and only requirement is that it be made a course in *oral* French.

3. *The following books should be carefully studied by all teachers who conduct classes in Oral French in the Intermediate School*:

(1) "The Principles of Language Study"; Harold E. Palmer—World Book Co., Yonkers-on-the-Hudson, N.Y.

(2) "The Cleveland Plan"; E. B. de Sauzé—John C. Winston Co., Toronto.

Recommended Textbooks:

1. "France—Première Année de Francais"; Camerlynck and Camerlynck—Allyn and Bacon.
2. "Pour les Petits"; Camerlynck and Camerlynck.
3. "Parlons Francais"; Camerlynck and Camerlynck.
4. "Mes Premiers Pas en Francais"; Chapuzet et Daniels—D. C. Heath & Co.
5. "French with a Smile"; P. J. B. Neilson—Thos. Nelson & Sons.
6. "Coquerico"—Ginn & Co.

The first book mentioned above is recommended for general use as a textbook. The second may be used in place of the first in schools where only a small amount of time is available for the course. In some schools teacher may find the third or the fourth preferable to the first and second.

The last two are suggested as reading books. Their use is recommended only where a considerable amount of time is devoted to the course, and only with classes that make rapid progress. The material they contain, when used, is not to be translated into English, but is to be read rapidly for oral practice and aural comprehension.

GENERAL SHOP

The course in General Shop can be adapted to serve exceedingly well the needs of adolescent pupils. It provides fundamental experiences during an important period of growth, and leads to participation in activities that are inseparably linked to the situations of daily life. It accepts the pupil as he is today, and assists him in solving problems that are meaningful and important to him. It recognizes individual differences, in order to help every pupil develop in terms of his own ability, and make his own contribution to the welfare of the school or home group. Just as in the elementary grades, pupils may participate in the class enterprise through manual or expressional skills, so in the intermediate grades, pupils may participate in the work of the class in Social Studies, Dramatics, Art, Music, Mathematics or Science, through the manual or expressional skills of General Shop. In other words, the course in General Shop is a very important instrument for effective "integration" of the intermediate-school programme. This integration operates both

in the field of motivation and of understanding: the group-purpose of the class is attained through the worthy contributions of all members, and understanding is achieved for every individual through meaningful experience. Every pupil-worker experiences also the uplifting satisfaction that comes from the realization of value in the product of his own brain and hand. In constructive projects requiring manual skill, most pupils will find means for adding to the usefulness and enjoyment of their lives, whether or not they engage in a manual vocation.

In addition to these major benefits, the course enables the pupil to become acquainted with some of the more important tools, materials and processes used in industry; he learns the importance of planning and of orderly procedure as necessary steps in any type of production; he develops an appreciation of the thought, labour and skill embodied in the things by which he is surrounded; and he is led to respect the workers and the work in the great field of manual and mechanical activities. He gains a degree of skill in the operations he performs and discovers the extent of his mechanical aptitude; he is more likely to choose a vocation suited to his tastes and abilities.

Objectives.

The general objectives of the programme in General Shop is to provide educative experiences through fundamental shop procedures, and to adapt these experiences to the needs of individual pupils. The more specific objectives may be set down in the following terms.

(i) To provide pupils with the means for problem-solving through the use of tools and materials.

(ii) To provide pupils with an opportunity to express themselves through the use of tools and materials.

(iii) To enable pupils to make the best choice and use of industrial products and services.

(iv) To develop an ability in the use of common tools that may be of direct use in earning a living or in leisure-time pursuits.

(v) To provide means for the integration of Social Studies, Mathematics, Science, Art and Dramatics.

Range.

The work of the general shop should be as varied as possible—the limitation being the degree of versatility on the part of the teacher and the range of available equipment and material.

Time.

The minimum allotment of time for a full year's work in General Shop, whether during the First, Second or Third Year of the programme, is *one-half day,* or approximately 2½ hours, per week. While it is preferable to have the class scheduled to occupy a full day, adjustments may be made to fit the allotment of time to the exigencies of the time-table, provided the minimum single period is at least one hour and the total time per week approximately a half-day.

Method.

In every phase of work, emphasis should be placed on a thorough analysis of each problem. The procedure should be somewhat as follows: A project is selected; its requirements are investigated—function, size, proportion, disposition and strength of parts, methods of joining, artistic possibility, etc.; a dimensioned sketch is made; a statement of the material required is worked out and set down; the operations to be performed are listed in their proper order. A finished drawing of the project may be made when time permits. No two pieces in the class work should necessarily be exactly alike. The whole class may, however, complete similar projects provided that the sizes or designs are different and exhibit individuality, and that each one is made from an individual drawing or sketch. Students who have had little or no previous experience in handwork should be directed to choose the simpler examples in each phase of work. Those who have proved skill from previous experience should be given more difficult projects.

Details of the different *phases* of General Shop are suggested below. Pupils should be permitted to work at different types of activities during the year, and will be expected to choose at least *two* phases of work, each requiring a *different medium.*

Drafting will not constitute a formal phase of shop work, but a shop sketch should be made wherever practicable. Shop sketching should be treated in such a way that basal conventions of representation are observed and not violated. Careful lettering should be insisted on.

Minimum Requirements.

No standardized minimum requirements have been set out for the successive years of the programme in General Shop. The weaker pupil may not achieve so much as the more capable, but he may have made more relative progress. All pupils should be employed to their maximum capabilities. The teacher will be the judge as to the type of assignment any pupil should take, and the assignment should be graded according to ability. This arrangement increases the responsibility of the teacher, but allows him greater freedom in developing the individuality of the pupil.

Combination of Grades.

In smaller centres it will be practicable to combine the shop work of Grade VII, VIII and IX if the number of students in the group is not too large, and adequate facilities are available.

In single-grade classes the enrolment should be about twenty. In shops with more grades than one represented, the enrolment should be less than twenty.

It must be kept in mind at all times that General Shop provides for individual differences among pupils, even allowing individuals to work with different media in any one class period. There should be no difficulty in having those from different grades working in a shop at the same time.

Combination of Work.

Projects involving two or more phases of work are to be encouraged, as these correlations embody the essence of the general-

shop idea and constitute the natural means of integrating the several phases of the work done. *It is proper in interpreting this course to permit the selection of any project within the possibilities of the shop and the ability of the student.*

Choices for Boys and Girls.

Girls may choose General Shop as an option or boys may choose Home Economics. A few interchanges with suitable projects might be profitably arranged throughout the year.

Maintenance of Shop.

Instructors must keep in mind that a fundamental requirement of a General Shop programme is that *the shop should be left neat and tidy at all times.* Tools should have definite places and be kept in these places when not in use. The benches must be brushed down and left clean. Lumber and models shall be stored neatly and the shop kept in an orderly manner. Floors shall be swept and a high standard of neatness maintained. Every effort should be made to keep the shop attractive. Attention should be given to the storage of projects under construction. Finished projects need not be retained. The silent impact of system, neatness and orderliness is most important in the proper functioning of General Shop. A reference library is essential in every shop.

Records.

(1) As a part of the administrative procedure, it will be necessary for shop instructors to keep a record that will show the progress which their pupils are making during the year. The need for these records is no less, but no greater, than the need for instructors' records in other courses of the programme. Obviously, no instructor can perform adequately his function in guiding the individual pupil along the lines which are most valuable to the pupil without close personal contact, quite apart from administrative records.

(2) Each pupil should keep a brief record, in the form of sketches of his project and such explanatory notes on the tools, materials, processes and procedure as may be required to show what is being done. It should be recognized, however, that the purpose of such record is distinctly secondary, and that it should not be carried to the point where it interferes with the pupil's interest in his work, or spontaneity in his performance. Pupils should be encouraged to set down their records and individual findings or results in their own way. They should have access to good designs.

Recommended for Use as a Textbook:

General-Shop Work—Ashcroft and Easton (Macmillan).

REFERENCE BOOKS

General

Boy Mechanics—Popular Mechanics Press, Chicago. (Several volumes.)

The Boy Craftsman—Hall (Lathrop, Lee and Shepard).

Instructional Units in Handwork—Brown and Thurston (Bruce Publishing Company).

Toy Making—Mitchell (Manual Arts Press).
Educational Toys—Peterson (Manual Arts Press).
Lino Printing—Margaret Dobson (Pitman Series).
Easy to Make Toys—Charles Kunou (Bruce Publishing Company).

Drawing and Design

Design for Industrial Arts, Woodwork, Book 1—Kyle (Nelson).
Design in Wood Work—Wells (Batsford).
Design for Industrial Arts, Metal Work—John Kyle (Nelson).

Wood Work

Instructional Units in Wood Finishing by McGee & Brown (Bruce Publishing Company).
Woodwork for Junior High Schools, by Alexander S. Hamilton (Copp Clark and Company, Toronto).
Hand Woodworking—Evans, Park, and Slatterie (Ryerson Press).
Art and Education in Wood Turning—W. W. Klenke.
Handicraft in Wood and Metal—Hooper and Shirley (Manual Arts Press).
Principles of Wood Working—Hjorth (Bruce Publishing Company).
How to Work With Tools and Wood (Stanley Rule and Level Company).
Coping Saw Work—Johnson (Manual Arts Press).
Furniture Boys Like to Build—Shaver (Bruce Publishing Company).
A Laboratory Course in Wood Turning—Golden (American Book Company).
Wood Turning—Ross (Ginn and Company).
Birdhouse Architecture—Baxter (Bruce Publishing Company).
Permanent Bird Houses—Gladstone Califf (Bruce Publishing Company).
The Handicraft of Wood Carving—Jackson (Sir Isaac Pitman & Sons).
Wood Carving Made Easy—J. I. Sowers (Bruce Publishing Company).
Courses in Wood Turning—Milton & Whalers (Bruce Publishing Company).

Metal Work

Artistic Metalwork by Bick (Bruce Publishing Company).
55 *New Tin-Can Projects*—Lukowitz (Bruce Publishing Company).
Interesting Art-Metal Work—Lukowitz (Bruce Publishing Company).
Handicraft in Wood and Metal—Hooper and Shirley (Manual Arts Press).
Metal Work Essentials—Tustison and Kranzusch (Bruce Publishing Company).
Metal Work for Grades VII, VIII, and IX—Jones (Bruce Publishing Company).
Forging—Jernberg (American Technical Society, Chicago).
Metal Work Projects—Peterson (Bruce).
Metal Work—Adams and Evans (Longmans Green and Company).
Elementary Wrought Iron Work—Bollenger (Bruce).
General Metal Work—Grayson (D. Van Nostrand).
Cold Metal Working—Van Lenven (McGraw-Hill Company).

Problems in Metal Work—Butler (Manual Arts Press).
Introductory Metal Working Problems—Bell and Shaeffer (Manual Arts Press).
Bench Metal Work—Giachino (Manual Arts Press).
Repoussé Work for Beginners—Haslope (Scribners).
Art Metal Work with Inexpensive Equipment—Payne (Manual Arts Press).
Metal Working and Etching—Adams (Popular Mechanics Press, Chicago).
Metal Spinning—Reagan & Smith (Bruce Publishing Company).

Plastics

Artistic Practical Handicraft Series—Glass (Clarke Irwin, Toronto).
A Practical Course in Concrete: Portland Cement Association. Canada Cement Company.

Cardboard Construction and Bookbinding

Bookbinding Made Easy—Klinefelter (Bruce Publishing Company).
Bookbinding and Care of Books—D. Cockerell (Pitman Series).
Bookbinding for Schools—Hewitt and Bates (Copp Clark Co.).

Leather Work

Fundamentals of Leathercraft—Cramlet (Bruce Publishing Company).
Leatherwork for Boys and Girls—Poole (University of London Press).
Artistic Leather Crafts—H. Turner (Pitman Series).

Farm and Home Mechanics

Farm Woodwork—Roehl (Bruce Publishing Company).
Things to Make and How to Make Them Series—Copp Clark Co.
Rushwork (The Dryad Press, Leicester, England).
Inexpensive Basketry—Bartin (Manual Arts Press).
Birdhouse Architecture—Baxter (Bruce Publishing Company).
Permanent Bird Houses—Gladstone Califf (Bruce Publishing Company).
Everyday Electricity—J. R. Lunt (Macmillan).
Furnishing the Home Grounds, by Shepardson (Bruce Publishing Company).
Essentials of Upholstery, by Bast (Bruce Publishing Company.
How to Recane a Chair Seat (Dryad Press, Leicester, Eng.).
Hand Loom Weaving—Luther Hooper (Pitman Series).
Basketry—Blanchard.
Furniture of Yesterday and Today—Earl Harmes (Bruce Publishing Company).
How to Design Period Furniture—Guttershal (Bruce Publishing Company).
Furnishing Home Grounds—Shepardson (Bruce Publishing Company).

Electricity

Everyday Electricity—J. R. Lunt (Macmillan).
Applied Electricity—E. W. Jones (Bruce Publishing Company).
Junior Electricity—Gordon Darling (W. J. Gage & Company).

Automotive Essentials—Kuns (Bruce Publishing Company).

Automotive Service—Kuns (Bruce Publishing Company).

Automotive Construction and Operation—Easton & Mahn (Ryerson Press).

Auto and Gasoline Engine Encyclopedia—Dyke (Goodhart and Wilcox, Chicago).

Principles of Automotive Mechanics—Selvidge and Kelsey (Manual Arts Press).

Company service manuals of present-day cars.

OUTLINE OF COURSE

The activities of General Shop should be closely related to the pupil's home life and should be closely integrated with other areas of his experience in the school. The following outline of activities is *descriptive,* not *prescriptive.* It represents a three-year programme for pupils of the intermediate grades in each of the several phases of General Shop. The material under each phase has been graded according to year, but there is nothing final in this grading. It is highly improper, in fact, to think of the programme for each one of the three years, Grade VII, Grade VIII and Grade IX, as definitely marked off from the others. Since there is no type of school work in which integration is possible to a greater extent than in General Shop, instructors are asked to recognize this possibility by *providing for integration in three ways*:

(i) Integration of the three years in any one phase; e.g., in Wood Work.

(ii) Integration of several different phases: e.g., Wood Work, Home Mechanics and Electricity. In other words, instruction is *not by phase but by project*; and projects may represent more phases than one.

(iii) Integration of General Shop with Social Studies, Science, Health, Home Economics, Art, Dramatics and Music.

Whether a pupil is in his First, Second or Third Year of shop experience, he should be allowed to work at several different types of activity if he desires to do so and his abilities warrant the diversification of effort. It will accordingly be permissable for pupils to choose any of the activities listed, whether the pupils are classified as of Grade VII, Grade VIII or Grade IX, and the activities of First Year, Second Year or Third Year. Pupils whose shop experience is beginning should, however, be given instruction on the use of tools, media and processes required. The following are the phases of the programme in General Shop: Wood Work, Metal Work, Art Metal Work, Leather Work, Cardboard Construction and Bookbinding, Electricity, Printing, Plastic Materials, Farm Mechanics, Home Mechanics, and, on special approval, Automotives.

SHOP DRAWING

Shop Drawing is not in itself a phase of the programme in General Shop. It is, however, required as a tool in different phases of the programme; but formal mechanical drawing must be left

until the pupils reach the high school. Dimensioned shop sketches, bills of material, and brief data with respect to procedure should be kept by each student.

Instruction in Shop Drawing is to be given only as required for immediate use with a shop problem or project, and must not be considered as a phase in itself.

In the Third Year, every pupil should make at least one finished drawing from his own sketch.

1. Simple scale-drawing: half and quarter size.
2. Drafting for shop problems:
   (i) Dimensioned shop sketch.
   (ii) Freehand sketching.
3. (i) Proper spacing on drawing paper.
   (ii) Inclined or slant Gothic alphabets—capitals and lower-case.
4. (i) Principles of design, as required in successive stages of work.
   (ii) Designing of projects.
5. (i) Geometrical drawing, as needed in projects.
   (ii) Development of surfaces: cube, cylinder, cone. etc.
6. Reading shop drawings; and estimating quantities and costs of materials.
7. Detail drawings, giving accurate information for laying out and constructing models.
8. Blueprint reading.
9. Sectional drawngs.

WOOD WORK

First Year.

The use of tools should be taught systematically as the tools are needed; and simple instruction in the nature, identification and uses of the common woods should be given.

The projects should be kept simple, but should involve the use of all common woodworking tools. Correct methods of planing to width and thickness, squaring ends and use of simple joints such as butt, dado, and cross-lap; fastening with nails, wood-screws, and glue. Projects should be finished with paint, stain, oil, shellac or varnish.

Pupils should be encouraged to make simple repairs of furniture, and to make, within the scope of their ability, things needed at home; e.g., bread board, utensil rack, etc.
Suggested Projects:

Silhouette and mechanical toys in thin plywood: apple-box wood, etc.

Sandpaper block, pencil sharpener, window stick, key rack, bread board, cutting board, game board, string winder, broom holder, box, match-box holder, tooth-brush holder, pipe rack, tie rack. card holder. letter rack, calendar mount, book ends, footstool string winder (cross-lap), teapot stand (cross-lap), taboret.

Honing knives and chisels.

Second Year.

Further instruction in preparing dimensioned sketches. These should appear in the pupils' record, along with the list of materials, cost, and cutting list. The instructor should help the pupil realize the special difficulties that may be encountered in the particular projects chosen, but the pupil should be encouraged to use his own ideas and designs, and to work out his own solutions.

Before the pupil uses a joint in a project, he should be advised to make first a practice joint. Such joints as dado, dowel, rabbet, mortise and tenon and half-lap should be demonstrated as the need arises.

Stress should be laid on methods of obtaining a good finish; and on care of tools (including sharpening) and maintenance of the shop in good order.

Where machines are available, they should be used somewhat sparingly during this year's work. Machines *must* be provided at all times with safeguards. Goggles should be provided and worn when necessary for safety in operating a machine. Shop instructors *must not* leave a classroom in which machines in actual operation are accessible to pupils.

The instructor should co-operate with the instructor in Home Economics, and with other instructors of the school, in making it possible for pupils to do the things they really want to do. These things *may* include repairs for furniture in the school or the home. *Suggested Projects*:

Footstools, end-tables, coffee table, magazine rack, book case, book ends, medicine cabinet, kitchen stool, step ladder, table lamp, floor lamp, hall tree, plant stand, nut bowl, shoe polishing cabinet, mallet, chisel handle, camp stool, smoker stand.

Third Year.

The type of project should be limited only by the student's ability, the length of time required and the usefulness of the project. All construction, design, and finishing problems should be thoroughly examined before a start is made on the project itself.

The pupil should be expected to make a dimensioned shop sketch for each project.

The following matters should be discussed in the class:

Design—General form and proportions; fitness for the purpose the project is planned to serve.

Tools—Name and function of each tool used and of its component parts; sharpening and care of tools.

Joints—How to make and use glued, halved, housed, mitred and rebated joints.

Wood—Growth and structure of trees; manufacture of lumber and lumber products; general characteristics of types of lumber in common use; seasoning.

Finishes—How to use paint, stain, shellac, varnish, wax.

In rural schools local woods such as spruce, poplar, willow or birch, may be secured and seasoned, and manufactured into useful articles.

Suggested Projects:

Similar to those of the Second Year, but with more elaborate design, more difficult construction, and better wood: picture frame, tea tray. More face-plate may be done—nut and fruit bowls, card trays, jewel boxes, teapot stands.

METAL WORK

Metal has become so common a medium in modern life in providing material, tools, utensils, and machines for man's use that its inclusion in a manual arts course has become an essential. Metal-working hand tools are not so expensive or so elaborate as hand wood-working tools. The range of projects in metal is materially less than in wood, for, to manipulate metal into its various useful forms requires elaborate and expensive machinery beyond the range of the school. There are, however, many fundamental operations that may be performed and there are many interesting projects that may be selected. The field divides itself naturally into three divisions: *cold-metal* working using hand tools and machines for shaping purposes; *hot-metal* working, such as casting and forging; and *sheet-metal* and its manipulation.

Interesting machines for metal working are made for use in schools. These are reasonable in price and within the range of possibility for installation in small schools. They are durable and economical to operate. They may be driven by electricity taken from the ordinary light circuit; by gasoline motors made for this purpose; or by foot treadles of efficient types. The use of power, under supervision, by boys, is justified by the experience boys have in operating and maintaining motor cars, tractors, farm motors and many other types of modern power machinery. Machines under power, however, must be kept subordinate to hand exercises. The inherent interest in the machine tends to minimize the use of hand tools. This needs to be watched, and it is of fundamental importance that hand manipulation be given major attention.

First Year.

Simple models involving the use of any of the lighter-gauge sheet metals; e.g., black iron, tinned iron, galvanized iron, etc.

Processes should involve the use of snips (straight and compound), hack saw, riveting and seaming hammers, mallets, files and dividers.

Methods of laying out simple surface developments directly on metal, with emphasis on the avoidance of waste and development of paper patterns or layouts.

Bending, forming simple seams and rivetting should be involved in projects.

Suggested Projects:

Match boxes, pin trays, cake and cookie tins, pie plates, cookie cutters, measuring cups, etc.

Lead, tin-plates or sheet-iron. *Suggested projects*: pin trays, ash trays, book ends, wall plaques, candle holders, desk sets, watch fobs, etc.

Wire-Work.

Bending and shaping wire of various gauges to make useful articles. (The section below on "Bent Iron or Venetian Work" may also be considered here.)

Suggested Projects:

Set of meat skewers; bill file; toasting fork; sock stretchers; coat hangers; poker; ash scraper; cake-cooler stand; broom holder; bottle washer; egg stand; egg lift; wire spoon; soap dish; potato masher; batter beater; lamp-shade holder; flower standard; flower basket.

Second Year.

Forging.

Building a forge fire and care of the forge; heating iron; tools and their use in drawing out, bending, twisting, upsetting, riveting, cutting, welding.

Suggested Projects.—Hook clevis, chain link, bolt, bracket piece, stove poker.

Students with special ability may proceed to more difficult projects.

Introduce steel working, annealing and hardening, tempering; tool care and sharpening; drilling; use of stocks and dies; use of drills, punches and forging tools; filing, finishing and polishing.

Suggested Projects.—Lamp brackets, shoe scrapers, hanging baskets, camp-fire stands, camp-cooking standards, punches, chisels, drills, bolts and nuts, spanners.

Sheet Metal.

Continue the work of the First Year.

Riveting and seaming; turning for wire edge; folding; forming; burring; cutting out and fixing bottoms, handles; soldering and fastening.

Suggested Projects.—Funnel, scoop, shovel, dust-pan, letter box, lamp shade, waste-paper basket, kettle, tea-pot.

Cutting, raising or etching and annealing sheet copper; brass or iron. Simple ornamentation.

Planishing, beating down, fluting and modelling, repoussé, piercing, punching.

Suggested Projects.—Ash tray, pin tray, small bowl, baggage tag, house number, locker number, key escutcheon, paper knife, watch fob, name plate, lamp shades, fancy paper knife, fancy handles.

Bent Iron or Venetian Work.

This course follows the wirework, as many of the tools and several of the manipulative exercises are the same, the difference being in the medium used. The material required is strip iron—narrow ribbons of iron that can be latticed, twisted, riveted, collared and spot-welded to form many beautiful and useful articles. The iron should be from 1/48th to 1/64th of an inch thick and from ⅛ to ⅜ of an inch wide. The material may be bought ready for use in coils of about 50 ft; but it may be cut from sheets. A certain

amount of thin sheet copper and brass may be required, and the collar bands may be cut from old tin cans or copper or brass tubing.

Exercises involving the making of curves, C & S & O, volutes and spirals, waves, chains and suspenders, twists and crossed strips or lattice work.

Suggested Projects.—Candle holder, bracket, flower-vase holder, picture frame, small easel for displaying show cards. Latticed frames with boss or rosette decorations. Miniature gates, standard lamp, lanterns, letter racks, pipe racks, electrical light fixtures—as table lamps, brackets, sconces; cake stand, mirror mounts.

Third Year.

Suggested Projects.

A.—Benchwork.

Use of hand tools in the operation of sawing, cutting with chisels, filing, chipping, drilling, countersinking, riveting; making calipers, try-square, gauge, bench top, hammer head, punch, machine bolt, etc. The use of taps and dies.

A power grinder, a small drill press, a hand shaper, or even a small metal lathe would greatly increase the scope of the work that might be done, and materially add to its interest.

Creative projects should be encouraged, particularly those which the pupils may put to a directly useful purpose.

B.—Sheet-metal.

The manipulation of soldering furnace or heating device used; safety precautions; the soldering coppers; their preparation, care and use; the soldering flux; solder and its composition; trimming and timing flux; the proper heats for various purposes. Exercises in soldering a lap joint in (1) tinplate, (2) galvanized iron, (3) black iron. Care should be taken in the mechanical and chemical cleaning of the metal and in the removal of oxides.

Rectangular tray, rectangular match box, pin tray, bake tin.

C.—Forging and Casting.

Simple forging principles from the following: cutting, bending, drawing, checking, twisting, riveting, and simple welding; an eye-bolt, staple, foot scraper, bracket, S-hook, ice tong, and a faggot weld.

Where a sufficiently high temperature may be obtained, interesting and instructive exercises may be worked out involving the casting of metal; making bookends, name plates, ornaments; using lead, solder, babbit, aluminium or copper.

ART METAL WORK

First, Second and Third Years.

General Range.—This aspect of General Shop particularly adapts itself to the need of pupils of the intermediate school. The course may be a major or minor interest of the pupils in all or any of his terms in General Shop. It is readily adaptable to intense and systematic study or to occasional average experience. In any year, the pupil may elect Art Metal Work, and carry on an intensive or moderate study. It is not beyond supposition that some pupils may acquired a high degree of skill in any or all of its aspects.

Teacher Approach.—It is expected that the teacher formulate with each individual pupil or group a course that advances from the less difficult to the more difficult, both as to actual construction and to theory. It is expected that the pupil of the third year acquire sufficient theory to carry the more difficult problems. Whatever of the course is practicable and is desired by the pupils should be arranged as a basis for a year's work.

Objectives:

(i) To extend the range of General Shop interests.

(ii) To introduce the pupils to a phase of metalwork that calls for beauty as well as utility.

(iii) To provide a range of experience not available in any other subject.

(iv) To a limited extent, to produce skilled artisans.

Tools and Machines.—In all General Shop centres where work of the three years is carried on, special tools, used for Art Metal Work only, are necessary. It is preferable to begin with a few special tools. Such tools as can be constructed in the shop should be made and used. These tools should be kept in a special cupboard, and should be suitably tagged and classified as to general and particular use. Proper care in handling these tools cannot be overstressed.

Books and Material Aid.—Books on Art Metal should be numerous, and a separte classification list showing problems and processes should be available to pupils. To these books should be added—blueprints, photographs, catalogues, scrapbooks, pupil drawings, pupil sketches. Anything that will improve and shed light on pupil problems should be provided. With time and persistent effort, a creditable collection of information and ideas may be classified and made available for the students' use. (Pupils and teacher should work together on this project.)

NOTE.—Nothing is so detrimental to General Shop interest as scanty and old-fashioned material. Pupils should be kept well supplied with all types and kinds of material. The teacher's duty is to put the whole course before the student; the pupil's duty is that of selection, improvement and successful completion of work. These must always be something new. Do not allow the pupil to work along with ideas, notions and helps that he has seen over and over again.

A pupil vocabulary list should be built up for tools and processes, this to be kept on charts or in pupils' notebooks.

Material.—A wide range of material should be made available. Iron, copper, lead ,brass, pewter, aluminum, silver, nickle-silver, antimony, are among the most important metals to be used. The most of these can be secured in sheets of varying thickness, in round or wire forms, in square rod shape, in pipe or tube variety, and in flat rectangular shape.

In the selection of the kind of material and the shape the metal takes, the pupil must keep in mind utility, design, construction and finish.

Aspects and Divisions of Art Metal Work.

A.—Historical View of Art Metal Construction.

(Very general treatment only.)

1. Early beginnings—Egypt, Crete, Greeks, Romans, Chinese.
2. Middle Ages—European.
3. Victorian.
4. Modern.

B.—Story of Metals.

Where and in what condition are they found? How are they mined? Blast furnaces. Products for sale. Alloys. (Very general treatment.)

C.—Processes and Skills.

Let the project suit the pupil and into a series of projects build a number of the following processes:

1. *Raising.*—In this the edge or rim of the metal is worked above the starting level. This work may be done on a wood block, or on a wood form on lead or pitch blocks. Pipes are sometimes useful. The work proceeds with a circular hammering from the centre outward. Frequent annealing is advisable.

2. *Annealing.*—The process of softening metal. The metal is heated to its annealing point and quenched in water, oil or pickle solution or cooled slowly. Copper anneals readily.

3. *Soldering.*—The process of joining two metals together. Soft or hard soldering (brazing) may be done. The soldering iron is cleaned, tinned; the metal is cleaned and heated; flux is added and the joint made with solder (50% lead—50% tin).

4. *Chasing.*—An outline or shape is followed with a chasing tool (thin, fairly blunt chisel).

5. *Repoussé or Embossing.*—The design is chased and the metal between is pushed up from the back with a small hammer or a small round punch.

6. Piercing.—This involves any method of cutting through the surface of the metal to leave an open shape. Drills, chisels or jeweller's saws may be used. The result is filed smooth. Special files may be secured for this.

7. *Engraving.*—Tools may be made or bought. The design or shape is followed; the tool is turned to produce a wide or thin line. Pressure is added to get depth.

8. *Coloring.*—This is the process of oxidizing the surface of metal to give varying hues. Slow heat with most metals gives a wide range of colors. Chemicals are mixed to give a wide range of solutions resulting in particular colors. (Experimentation is necessary here.)

9. *Polishing.*—This may be achieved by hand or with a machine. It involves the use of abrasives of successively finer structure to leave a high polish on the surface of the metal. Emery cloth, steel-wool, crocus cloth, tripoli are the most common. Wire, bristle or canvas wheels may be used with the lathe or mandrel.

10. *Etching.*—Nitric acid used with water (50-50) makes an ideal etching acid. A resist of black asphaltum or a mixture of beeswax may be used. Old dentist tools may be sharpened to remove wax. Any coloring to be done should be carried out before the resist is removed.

11. *Dips.*—These are acid mixtures into which metal is dipped to enhance or change the structure of the surface.

12. *Planishing*:

(i) The process of smoothing and hardening the metal by hammering it carefully with the smooth flat face of a planishing hammer.

(ii) The process of decorating the surface of metal by hammering with the ball end of a hammer.

13. *Riveting.*—Holes are drilled to fit and rivets are upset with a hammer. A riveting set is used to round them off.

Other processes that may be required are the following:—

14. Bending.
15. Twisting.
16. Stamping.
17. Lapping.
18. Stapling.
19. Binding.
20. Fluting.
21. Modeling.
22. Paneling.
23. Gilding.
24. Enameling.
25. Casting.
26. Filigree.
27. Electroplating.
28. Necking in.
29. Enameling.
30. Jewelry.
31. The metal lathe.
32. Metal finishes:
    (i) Wax.
    (ii) Lacquer.

D.—Repousse Work.

Piercing, Chasing and Etching, etc.

Art metalwork has an appeal to many students artistically inclined. It embraces the use of such metals as iron, copper, brass, pewter, aluminium, silver and nickel-silver, in sheet, strip or wire form. These metals are easily worked, and in them many artistic designs may be executed. They may be shaped by hammering, bending, twisting, piercing, etc., and decorated by raising, engraving or chasing, etching, colouring. Their surface may be treated with enamels or laquers. Various combinations may be devised by lapping, soldering, riveting, stapling, etc. Many interesting and useful models, which give great satisfaction to the student, are easily made.

E.—Suggested Projects:

Small plaques or designs for book covers or box tops, blotters, paper knives, thermometer frames or photo mounts, finger or door plates, ornamental door catches, small circular bon-bon dishes, crumb trays and brushes, barometer mounts, mantel clock mountings, candle holders, bracelets.

In etched work the designs and projects are innumerable, including watch fobs, bag tags, shields, name plates, clock mounts, desk sets.

In pierced work (which may be etched also and worked in relief) the projects could include hinges, pulls, escutcheon plates, belt buckles, bag ornaments, sugar spoons, tea strainers, box corners.

Special mounts, hinges, etc., required in the Woodwork or Cabinet Work, can be readily made to suit the period, style or design. These frequently cannot be bought.

LEATHER WORK

N.B.—This field of work offers an excellent opportunity for integration with Social Studies.

Leather has a colourful and romantic background. It still remains after untold ages the strongest flexible substances in common use. The history of the tanning industry is intimately tied up with the story of man's existence on this planet. The historical background of leather, its close association with the development of civilization and the part it plays in the industrial and cultural life of today should be brought to the attention of the student. As civilization advanced, the uses of leather have expanded in many directions. Modern machinery has changed the art of tanning and the manufacture of leather products from a trade to that of a highly organized, vitally important industry.

Leather transmission belts turn the wheels of industry. Leather forms an essential part of the textile industry. Shoes, luggage, saddlery and a wide variety of accessories are made from leather.

The study of the sources of hide supply and of the various tanning agents used offers an interesting survey for Social Studies.

Pupils should be trained for intelligent purchasing and consumption of articles manufactured from leather.

First Year.

Leather manufacture and characteristics—cutting, stitching, punching, thonging, fastening with wax-end and rivet; eyelets, snap fasteners, zippers, glue.

Suggested Projects:

Watch fob, baggage label, key case, dog collar, belt straps for various purposes, music portfolio, book cover, wrist-watch strap, simple purse, leather cuffs, leggings, scissors case, chair backs.

Surface finishing and decoration. Staining and dyeing.

Second Year.

Topical Outline for Discussions:

(a) What is leather?
(b) Sources of supply.
(c) Characteristics.
(d) Uses.

Suggested Procedures:

Selection of project.
Design worked out.

Making a pattern.

Cutting materials.

Assembling.

Attached fittings.

Models of a more advanced type, according to the ability of the student.

If facilities permit, projects involving the making of gloves, mittens and moccasins from prepared skins, of gauntlets, slippers and even shoes, and shoe repairing may be begun. The repair of harness parts for dog harness or harness for horses makes an interesting and valuable project.

Designing and decorating leather—staining, burning, stitching, modelling, tooling.

Making wax-ends—fastening, needles, single and double stitching, using the awl, patching.

Suggested List of Projects:

Book markers, whisk broom holders, tie racks, pipe racks, key containers, coin purses, suspenders, gloves, hunting-knife case.

Third Year.

Topical Outline for Discussions:

Leather:

(a) Composition.
(b) Source of supply.
(c) Types.
(d) Preparation (tanning).
(e) Decoration.
(f) Uses.

The type of work carried out and the projects selected should be integrated with the home life and interests of the community.

Suggested Procedures:

Selection of project.

Analysis of suitable design and materials required.

Cutting patterns.

Decoration.

Assembling.

Attached fittings.

Suggested Projects:

Key containers, halters, bridles, belts, book ends, handbags, card cases, underarm bags, purses, bill folds, camera cases.

CARDBOARD CONSTRUCTION AND BOOKBINDING

First, Second and Third Years.

Development of surface, laying-out, cutting, trimming, fastening, pasting, cover papers, decorating, lining papers.

Manufacture of various types of simple binding case, cloth boards, paper-covered boards; preparing magazines and other similiar material for binding; use of simple presses, sewing frames and other equipment for bookbinding; sewing a book, and placing end and lining papers; binding. Making the various containers with heavy board—covering, lining and decorating.

Scale-models of houses and other buildings that are of use in planning the layout of farms, villages and towns. (Similar models are used in enterprise work for the junior grades.)

Suggested Projects:

Simple boxes for various purposes and of different shapes—pin trays, handkerchief cases, candy boxes, cartons for various purposes; portfolio; snapshot album; scrapbook.

Simple book-binding; note-book covers; decorative forms for advertising; decorating and lettering.

More advanced work on binding cases; introduction of tooled leather for covering; padded and plain covers; placing of head and tail bands; more difficult work in sewing and binding; making of marbled papers; use of more advanced equipments for tooling, burnishing, stain and color work.

Care and repairing books.

Making of boxes using heavy millboards; binding, covering, lining, padding and decorating same.

ELECTRICITY

First Year—Direct Current.

Generation of electricity.—Use of dry cells. Methods of connecting dry cells in series and parallel. General explanation of the terms *volt* and *ampere*. Correct method of fastening wire around a bolt, terminal or binding post. Splices as required for low voltage and simple electrical circuits. Insulators and conductors most commonly used in electrical work.

Bell circuits.—Construct a simple door bell circuit using bell and dry cell and push button. One push button and two bells. Simple signal system using bells or lights or buzzers. Sketch circuits before construction knowledge of symbols used.

Magnetic pull.—Magnetic and non-magnetic materials. Construct a simple electro-magnet, a galvanoscope, a buzzer with one coil, a compass by suspending a magnetized razor blade or sewing needle in a glass jar by a thread. Make a bar magnet, horseshoe magnet, with keeper.

Suggested Experiments:

(1) Demonstrate the pull of magnetic lines of force about a bar or horseshoe permanent magnets.

(2) Lines of force about a copper wire carrying a current and effect of reversing direction of current. "Right-hand law."

Suggested problems for study and discussion:

(1) Composition of a dry cell and how it originated. Professor Volta and his voltaic pile.

(2) Safety regulations and fire prevention.

(3) Electric shock and what to do in case of contact with power-lines.

(4) Reading an electric-light meter.

Second Year—Direct and Alternating Currents.

Generation of electricity to include storage batteries. Testing 2 and 6-volt batteries. Terms—volt, ampere, ohm, watt.

Bell circuits.—Construct complex bell systems such as: one button to ring two bells in parallel. One button to ring two bells in series. Two buttons in parallel to ring two bells in parallel. Sketch bell circuits before construction. Use of volt meter and ammeter in testing bell circuits.

Electric heating.—Construct an electric pin for wood or leather burning.

Electric lighting.—The function and importance of fuses. Carrying capacity in amperes of wires used in house wiring. Making and soldering simple joints. Construction of an extension cord using fire underwriters' knot, and correct method of attaching wire at terminals of plug and socket. How to instal and use a trouble lamp for finding broken wires, etc.

Electro-magnetic pull.—Construct electro-magnets single and in two coils, electric toy motors, telegraph, buzzers, door latch. Explanation of torque in a motor.

Radio.—Construct a simple receiving set from manufactured parts. Crystal set and wind coils required for same.

Approximations of electrical measurements.—Ability to estmate roughly voltage, amperage, ohms, watt, by comparison. For example, 100 watt lamp uses 1 ampere; toaster uses about 2/3 horse-power; number of ohms in 1,000 ft. copper wire.

Use of direct current, volt and ammeters, such as may be obtained from old Ford cars.

Suggested demonstrations and experiments:

(1) The effect of an electric current on clean tap water, salt and water in soluton, dry salt, weak acid.

(2) Explanation of alternating current:

(a) Horseshoe permanent magnet and its effect on a 110 volt-lamp when current is passing through it.

(b) Electro-magnet held to the end of an empty can.

Suggested problems for study and discussion:

Safety regulations; service box; shock.

Third Year.

Bell circuits.—Construct: a three-wire return-call bell system; a three-wire return-call light system; a local fire alarm using three bells and three buttons. Sketch circuits before construction.

Electric heating.—Construct a simple heater unit, simple stove or toaster. Assembling or repairing a cigarette lighter, flat iron, table stove immersion heater for tank.

Magnetism.—Construct a simple step-down transformer using prepared directions from a book for low voltage. Small motor, telegraph, shocking coil.

Construct an electric bell.

Suggested problems for study and discussion:

Methods of computing cost of operating various machines. Efficiency of lighting and methods of measuring same. Wind-chargers.

Suggested Projects (All Years):

Generating static electricity; demonstrations with pith balls, electroscope, amber and hard rubber rods. Make Leyden jar. Magnetism. Make a compass needle. Exercises with bar or horse-shoe magnets, iron filings, magnetic compass and dry cells. Draw sketches of the magnetic fields observed. Make a "western union" and common tee-splice. Construct a small horse-shoe electromagnet. Make a simple motor, using the electromagnet. Construct a simple bichromate cell or simple acid cell. Connect dry cells in series, parallel, and series-parallel, and measure voltages in each case. Construct a simple heater unit, such as toaster or simple stove. Exercises with different kinds of resistance wire in the form of circuits which will include a voltmeter and ammeter.

PRINTING

First, Second and Third Years.

Study of the case, inserting letters and characters, type measurement; the point system; relation to lineal measurement; spacing material; composing stick; care of type; setting-up exercises involving paragraph indentions, capitals, numerals, Roman numerals and punctuation; type indentions illustrated by setting-up exercises; simple tabulations of words and figures; initial letters; simple exercises in panel work; exercises in reprinting type forms: e.g., prose paragraphs, cards; pulling proofs, proof-reading and correcting copy using conventional signs.

More advanced and difficult exercises in type indentions, tabulations, panel work and reprints. Practice in setting up of type forms from manuscript copy; the taking of a galley proof; proof-reading, making corrections; handling of type; composing stick to galley and tie-up; removal from galley to composing stone and vice versa; distribution of type; press lock-up, operation of press; press feeding.

PLASTIC MATERIALS

First Year.

Modelling geometrical solids in clay to get the feel of the medium. Moving forms including animals; groups allowing range for imagination; plaques, simple vessels; tinting and colouring.

Papier Mâché.

Preparation and use in making simple models; colouring; raised or contour map.

Cement.

Simple models—tea-pot stand, stepping-stone slabs, foot-scraper base, small drinking trough; decorating garden pieces; manufacture of brick, tile, and various blocks.

Plaster cases from suitable exercises in clay, plasticine or other modelling material.

N.B.—See the reference book mentioned in the corresponding section of the outline for the second year.

Second Year.

Continuation of the work of the First Year with more advanced models.

More intensive study of concrete, Portland cement, sand, gravel, water, tests, proportions, mixing, placing. Forms, their construction; simple reinforcing; setting. Finishing; colouring and decorating. Making plaster and stucco.

Models of a more advanced type in clay or plasticine, and further exercises in plaster casting.

Suggested Projects—as for the First Year. Garden pedestal, walks, side-walks, garden bench, fence post, ornamental vessels, sun dial.

Reference Book:

A Practice Course in Concrete; Portland Cement Association. Canada Cement Company.

Plaster of Paris—casts from models; decoration.

Suggested Projects.—Cast of hand, arm, or foot; coat of arms, inscriptions and lettering, lamp pedestals; piecing separate molds into a unity.

Introduction to modern plastics; i.e., synthetic resins, such as catlin, trafford, etc. Exercises may be chosen from costume jewellery, drawer pulls and handles, simple articles for use as trays, bowls, vases.

Making the use of papier mâché; modelling waxes, gesso properties and use of alabaster, soapstone, and other soft stones; mask-making for use in dramatics; soap carving.

Third Year.

A choice may be made from any of the media of previous years, but more advanced projects requiring greater application should be expected. The main emphasis may profitably be placed on concrete work and the new plastics, both of which should find an important place in any practical programme in General Shop. Concrete work, because of its great value in building construction, and its relative availability in the West, is probably the more important; but the new uses of synthetic resins (especially those capable of being moulded), the beauty of their colouring and fine texture, make a study of, and some practice in, the manipulation of these products well worth while.

Suggested projects in concrete work: Slabs of various shapes and dimensions for walks, various troughs and boxes, imitation marble and granite, hamp pillars, posts for fencing and other purposes, garden furniture and ornaments.

Projects in synthetic resins: Bon-bon dishes, toilet trays and trinket boxes, table lamps, candle holders and sconces, turned and chased articles, book ends, table centres, and flower holders.

FARM MECHANICS

N.B.—The following outline is suggested for one year's work, in which Grades VII, VIII and IX may be combined.

This course in Farm Mechanics is designed for rural schools with two or more rooms. The time allotment is one half-day per week. If cold weather is a serious handicap for shop work, the instructor may assign to shop work one school day per week during September, October, April, May and June. *The approval of the Inspector or Divisional Superintendent must be secured before this option is offered. If this option is selected, the full time of the General Shop for the year may be devoted to it.*

The aim of Farm Mechanics is resourcefulness in the construction, the upkeep, and the repair of farm conveniences, with tools and materials that are available on the average farm. The instructor and pupils may choose a *MINIMUM OF THREE PHASES in any one year, ONE OF WHICH SHALL BE WOODWORK.* Suggested projects may be selected from the lists below.

Where large woodwork projects are selected, the co-operation of the local farmers should be secured.

Practical experience in several of the phases may be obtained, with the permission of the School Board, in the upkeep and repair of the school grounds. Such things as fences, barns, out-buildings and walls often need attention.

1.—Woodwork.

Suggested Projects.—Outdoor conveniences: Repairing and fitting of doors, sashes, padlocks; utility and ornamental fences; feed and water troughs; self-feeders for poultry and stock; ladders; wheelbarrows; hayracks; hotbed frames; swing.

Indoor conveniences: Repair and fitting of doors and sashes, locks; taking out old putty, glazing and puttying sashes; repairing screen doors and screened sashes; flower-boxes, flower-stands, wash benches, wall shelves, wall brackets, kitchen stools, feed scoops, wood boxes, coal boxes, frames for rug-making, ironing boards, sleeve boards.

2.—Blacksmithing.

How to build a forge fire; heating iron, welding, tempering.

Suggested Projects.—Repair of chains, replacing hooks, large-size hinges, making chain links, gate hooks, gate hinges, clevises.

3.—Concrete.

How to make concrete; proportions of ingredients; wooden forms.

Suggested Projects.—Concrete slabs for door-step or foot scraper; concrete sidewalk; wall concrete blocks with hole for leading stove-pipes safely through partitions. Small concrete foundations for barns, garages, chicken houses, hot beds.

4.—Painting.

Brief discussion of paint, its manufacture, qualities, economy; "Save the surface and you save all"; durability, resistance to weather and wear; sanitation; appropriateness and economy of various finishes; money-saving value of outdoor painting; preparation of surfaces for various finishes.

The durability, resistance to weather and wear, sanitation, appropriateness and economy of various finishes. The money-saving value of outdoor painting. Preparation for various finishes.

Suggested Exercises.—Application of paint, stain, varnish, calcimine. Patterns for sponge calcimining. Floor refinishing by staining, graining and varnishing. ,

Application of oil, linseed oil, stains, paint, varnishes.

5.—Harness Repairs.

Suggested Projects.—Sewing and riveting harness parts. Making bridles. Splicing leather lines, saddle straps.

6.—Upkeep of Farm Machinery.

Small repairs on binder, separator, plow, seeder, harrow. Study of the construction of heavy farm machinery. How to secure best draft from a team of horses.

7.—Electrical Equipment.

The wider use of electric power about the farm: discussion on the values and efficiency of wind-chargers, charged fences, and house lighting systems.

8.—Wickerwork.

Curing native willow for wickerwork.

Applying wickerwork to wooden frames: chairs, small tables, flower-stands, verandah and garden furniture.

HOME MECHANICS

N.B.—The following unit on Home Mechanics has the same set-up and requires the same objectives as the preceding unit on Farm Mechanics. In other words, the outline suggested is for one year's work, in which Grades VII, VIII and IX may be combined. Projects may be chosen by the pupils in consultation with the instructor.

The jobs listed are suggested only. Others may be added as the local situation requires.

1. Furniture repairing.
2. Application of paints, varnishes and enamels.
3. Care and upkeep of floors.
4. Household upholstery: Repairing and fixing roller and Venetian window blinds.
5. Plaster patching.
6. Repair of window and door screens.
7. Door locks and hinges.

8. (a) Reading meters.
   (b) Repairing electric irons.
   (c) Repairing electric cords.
   (d) Replacing fuse plugs.
   (e) Care of vacuum cleaners, washing machines, sewing machines.
9. Sanitation, bathroom and kitchen.
10. Proper ventilation of rooms.
11. Care of gas stoves.
12. The hot-water systems.
13. Care and upkeep of plumbing.
14. Hot-air furnaces.
15. Removal of old varnish.
16. How to prepare and apply calcimine.
17. Glaze windows.
18. Cut and set glass.
19. Regulate mixer on gas burner.
20. Repair faucets.
21. Repair flush-tanks.
22. True-up door that sags or binds.
23. Fit and lay linoleum.
24. Put up a clothesline.

AUTOMOTIVES (MOTOR MECHANICS)

N.B.—This unit may be offered only in schools where it has been specially approved by the Department of Education. It must not be attempted without this approval.

For the interpretation of this course one or two used cars in fair running condition should be available. Models having engine, clutch and gear-box assembled as one unit are not recommended.

The students should remove the bodies, fenders, aprons and running boards from the cars supplied for practice work. These "dead" parts are of little value educationally, and they interfere with the work on the mechanical units. Mount the chassis on four strong sawhorses, placed underneath the springs and ahead of the rear axle, so that the front and rear axles may be removed when required.

The complete chassis provides better instructional material than separate units. The chassis should not be dismantled into a number of separate units. Of course, at different times during the school year, the chassis may become divided into the separate units, but at the beginning, at the end, and a few times during the term, they should be found completely assembled.

Special effort should be made at certain intervals during the term to bring the units together as a complete chassis, and to run each one under its own power on the sawhorse. The making of engines to run again, after having been dismantled into a number of inanimate parts and again assembled, has a powerful appeal to boys' interest. "Live" engines are the life-blood of any motor mechanics course.

In order to acquaint the student with the fundametal principles behind automobile construction, maintenance and repair, the following units of the automobile should be covered: the multi-cylinder, four-cycle gasoline engine and its auxiliaries—lubricating, cooling, and fuel systems; gear-box, including purpose of the clutch; rear axle; front axle, and steering gear.

The pupil should know the name of unit, and technical names of its important parts; location, simple operation, and general purpose of each essential unit.

Any necessary theory covering units may be given in short shop talks, taking from five to fifteen minutes each day.

The number of boys to be employed per chassis can be calculated as follows: If first-year classes are confined to mechanical units, leaving electrical units for second-year classes, then at one time the following groups could be working: two boys on front axle, two boys on rear axle, two boys on gear-box, two boys on engine block, two boys on steering gear. This makes a total of ten boys per chassis. Some congestion may result at the beginning of the term if all these boys endeavour to remove their particular units from one chassis at the same time. However, they will gradually reduce in number as their particular units are removed to different parts of the shop. During the term the congestion should not to be troublesome as the groups will be at different stages.

Since a class for one instructor in a small centre might be set at twelve students, it will be seen that no difficulty should arise in providing jobs when *two* chassis are made available by the school district. Smaller classes would require only one. Where two chassis are provided they should be of different makes so as to give additional experiences, especially to the brighter students.

At the end of the course the students should have a general knowledge of the modern automobile with the exception of the electric system.

HOME ECONOMICS

Home-life education in the school should have its centre in the course in Home Economics, which, properly speaking, is a co-operative enterprise, open both to boys and to girls. In this *Home Centre,* pupils work as members of a family group; and their learning is functional because it is accomplished in a realistic environment. The Home-centre plan provides not only a *setting* similar to the home, but also such *situations* as commonly arise in the home. It offers an opportunity not merely for unrelated experiences in cooking, sewing, child care, housekeeping and dietics, but also for the blending and integration of these experiences in a home programme, that aims at the common welfare of the family and of the community.

If this plan is to function successfully throughout the intermediate-school years, every pupil, on entering the home centre, must be sensible of his *responsibility for the planning of a task and the completion thereof to the satisfaction, not only of herself, but of the whole group.* The performance, in other words, is evaluated by group approval. The teacher is guide and consultant, and will therefore plan with the pupils in such a way as to realize the fundamental objectives of the programme.

Situations will be presented that call for skill in manipulation and management, and for willingness to accept responsibility. Teachers and pupils will work together in the detailed planning and organization of classroom activities and home projects, and in the solving of practical problems. *The programme does not consist of serial "lessons" or "talks" on prescribed "topics."*

Integration.

This programme provides for a considerable amount of integration with Health and Physical Education, General Science, General Shop, Social Studies and Community Economics. When a given activity or project is under way, there should be little concern whether it is described, for example, as Home Economics, Health, Social Studies or General Shop. The important things about it are the extent to which it is meaningful to the pupils and accepted as worth while by them, and the opportunity that it offers for the co-operative solution of problems.

Three Years' Work Combined.

This programme suggests material and activities for three years' work. There is no intention to divide this work vertically for Grade VII, Grade VIII and Grade IX. Under proper organization it is both possible and desirable to combine in one class pupils who are beginning and those who have already had one year's or two year's experience.

There is naturally some progression in difficulty, as is shown in the following schedule.

First and Second Years:

Sharing in Family Life:

1. Co-operation in simple home duties.
2. Planning simple room arrangements.
3. Participating in recreational activities of the home.
4. Making and caring for personal belongings.

Third Year:

Personal and Social Adjustment:

1. Spending money wisely.
2. Assisting and caring for younger children.
3. Solving personal problems.
4. Co-operating in the solving of family problems.
5. Co-operating in all home activities.
6. Participating in community improvements; e.g., equipment and furnishings for school, playgrounds, library.
7. Keeping health records, such as those showing growth; correction of health defects by appropriate diet.

THE PROGRAMME

General Objective.

The general objective of this programme for Home Economics is that of all education; namely, to help the pupils develop to their full capacity in all phases of life.

Special Objective.

More specifically, the programme aims to raise the general standard of home life: in other words, to help the pupils to do better those things which they will later be called on to do anyway. The programme may be described in terms of the following outstanding features, four in number.

I.—Basic Skills in Demonstration and Practice.

Because the majority of intermediate-school girls will eventually undertake the duties of home-making, it is obviously of advantage for them to learn to perform efficiently and expeditiously those simple household tasks which they will later be called on to perform anyway. These simple tasks involve certain *basic skills*, which must be mastered for efficiency, in order that time may be saved from them for other, and more important, activities of the home.

These basic skills are set out in the following list. The programme must provide ample opportunity for demonstration and practice in these skills, but *not by means of a series of unmotivated "lessons."* This programme requires that the learning of these skills be *motivated* in three ways: (i) by home projects, (ii) by home-centre problems, and (iii) by culminating activities. The basic skills are not, in themselves, the objective of the programme, but they are necessary to the realization of that objective; and under proper motivation, they make the realization possible.

List of Basic Skills:

HOUSEKEEPING:

- Dishwashing.
- Care of garbage.
- Dusting.
- Care of simple equipment.
- Bedmaking.
- Ironing (flat pieces).
- Table-setting—simple service.

COOKING:

- Stirring.
- Beating.
- Folding.
- Measuring.
- Paring, etc.

SEWING:

- Use of scissors—cutting.
- Use of needle.
- Use of Thimble.
- Pinning.
- Measuring with tape and ruler.
- Machine sewing.
- Plain-sewing stitches.

LAUNDERING:

Washing.
Rinsing.
Hanging.
Sprinkling.
Folding.

CARE OF BODY:

Hair; teeth; bathing; hands and nails.

Possible Demonstrations:

Sewing by machine.
Manicuring.
Cleaning and caring for hair.
Cleaning shoes.
Polishing furniture.
Arranging flowers.
Cleaning silver.
Home Crafts.

Field Trips—with definite purpose in view; e.g., studying arrangement of supplies and equipment, studying sanitation, choice of color.

Dairy.
Model Kitchen.
Grocery.
Flour Mill.

II.—Home Projects.

The Home Centre in the school should keep in close contact with the pupils' homes in the community. The teachers will find it necessary—

1.—*To become acquainted with homes of the community.*

The following are means by which this purpose may be served:

(i) Visiting the homes.
(ii) Taking part in community activities.
(iii) Informal visits at the school from small groups of parents, throughout the year.
(iv) Teas and demonstrations for parents.
(v) A parents' advisory committee.

N.B.—Consult the books listed for reference under Problem XI below.

2.—*To become informed regarding the needs and interests of the pupils.*

In planning for a year's work, and before entering any new phases of the programme, the teacher should have a check-list prepared for the pupils' activities in the home.

The following is an example of a check-list for laundering:

What you do	What you like to do	List
		Do you launder your own?— silk underwear, sweaters and scarfs. Do you?— help with the family washing, hang out the clothes, iron the clothes, starch the clothes, make starch for the clothes, mend the clothes for other members of the family, sew on buttons and snaps, press your own clothes, clean spots on clothes, put away clean clothes.

It is a simple matter to transform these home duties and experiences into *home projects,* by relating them definitely to the activities of the school.

REFERENCE: *The Home Project Method*—Bulletin of the United States Department of Agriculture, Washington, D.C.

3.—*To conduct group discussions.*

The democratic way of life requires group discussion of common problems, group planning for the solution of these problems, and group evaluation of the results.

Group discussion is a very effective procedure for the planning of classroom projects and the evaluation of results.

REFERENCE FOR THE TEACHER: *Suggestions for Group Discussion Leaders*—United States Department of Agriculture, Washington, D.C.

III.—Classroom Problems.

Below will be found a suggested list of classroom problems, outlined in some detail. These problems may serve as a *basis for class discussions,* and also as a means for *interpreting and integrating the home projects and the culminating activities of the home-centre classroom.*

IV.—Culminating Activities.

The following are suggested as suitable activities for the home-centre classroom. *They are motivating activities for demonstrations and practice in the basic skills:*

GROUP:

Picnic.
Open house.
Simple entertaining.
Health play.
Christmas activity.
Tea for the parents.

INDIVIDUAL:

Some of the group activities may be carried into the homes as home projects.

CLASSROOM PROBLEMS

PROBLEM I.—What are the best means of getting and maintaining health?

Questions to indicate scope of problem.

What does it mean to have good health?
What factors affect our health?
How does our health affect our general appearance and our disposition?
What facts about ourselves can be discovered by means of a physical examination?

Brief outline.

Characteristics of a healthy girl are glossy hair, clear skin, bright eyes, erect posture, firm muscles, elastic step, even disposition, sufficient energy for work and play, correct weight for height, build and age.

Pupil experiences.

Make and keep a weight chart.
Plan daily food patterns for family menu, with consideration for time and limit of cost.
Plan and prepare own or family meals.
Plan and pack school, picnic or camp lunches.
Check children for nutritional status.
Plan and give a health examination.

References:

Fundamentals for Home Economics: Jensen, Jensen and Ziller (Macmillan Co., Toronto).
New Course in Homemaking: Calvert (Turner E. Smith Co., Atlanta, Georgia). Work book for the foregoing.
Foods and Homemaking: Carlotta Greer (Allyn & Bacon, New York).
A Girl's Problems in Home Economics: Trilling, Williams & Reeves (Lippincott, Chicago).
Film: *Food Makes a Difference*—Consumer Bureau, Dept. of Agriculture, Ottawa.

PROBLEM II.—How can a pleasing personality be developed?

N.B.—This problem belongs also to Health and Physical Education, and may be studied there.

Questions to indicate scope of problem.

What qualities make a charming girl?
How can personal traits be altered?
What can be done to develop pleasing personal traits?

Brief outline.

Characteristics of a pleasing personality may be friendliness, sincerity, unselfishness, thoughtfulness for opinions and feelings of others, courtesy, poise, etc.

These are the surface indications; but underneath there must be freedom from fears, a feeling of adequacy and confidence, and a purpose in life accepted as worth while, in which the welfare of the individual is bound up with the welfare of others. (Consult in this connection any good textbook on the "Psychology of Personality" or "Mental Hygiene," such as those listed on page 44 of Bulletin III of the Programme of Studies for the High School.)

Pupil experiences.

List the qualities of the most pleasing person you know.
List qualities in yourself which you think are pleasing.
List the qualities which you think could be changed for the better.
Make a score card to judge personal traits.
Rate yourself by this score card.
Dramatize situations where pleasing personal traits are brought out.
Have a question box for unsigned questions.

References:

Living Your Life: Crawford, Cooley & Trillingham (D. C. Heath & Co.).

The Girl Today, the Woman Tomorrow: Hunter (Allyn & Bacon, New York).

The Girl and Her Home: Trilling & Nicholas (Houghton Mifflin Co., New York).

Cues for You: Mildred Graves Ryan (Appleton Century, N.Y.).

PROBLEM III.—How can friends be made and kept?

N.B.—This problem belongs also to Health and Physical Education, and may be studied there.

Questions to indicate scope of problem.

What are the desirable qualities which you look for in your friends?

What qualities are necessary in yourself in order to attract friends?

What can you do to develop these qualities?

Brief outline.

Characteristics of a good friend may be sincerity, co-operation, unselfishness, respect for opinions and feelings of others, fair-mindedness, health, attractive appearance, courtesy, poise, etc.

Pupil experiences.

List the desirable qualities of a person whom you admire.

Make a plan to develop in yourself those qualities which you lack.

References:

As for Problem II.

PROBLEM IV.—What good grooming means and what it accomplishes.

N.B.—This problem belongs also to Health and Physical Education, and may be studied there.

Questions to indicate scope of problem.

On what does appearance depend?

What are the facts concerning the care of skin, hair, nails and teeth?

What plans can be made for the care of personal clothing that one may be well-groomed daily?

Brief outline.

Characteristics of an attractive person may be good health, correct posture, well-cared for body (i.e., skin, hair, nails, teeth), clean and becoming clothes.

Pupil experiences.

Demonstration of proper brushing of the hair, shampooing, cleaning and care of the nails, laundering personal garments, arranging dresser drawers, etc.

Reference:

Junior Home Economics (Unit I, Good Grooming): Friend & Shultz (D. Appleton Century).

PROBLEM V.—How to look well on a small clothing budget.

Questions to indicate the scope of problem.

How much do my clothes cost?

What clothes can I make for myself?

How can I choose becoming clothes?

How can I care for my clothes so that I shall be well-groomed and attractive?

Brief outline.

The well-dressed girl wears appropriate clothing, well-brushed, pressed, clean, mended, and of becoming style and color.

Pupil experiences.

Keep a record of your clothing expenditures for a year.
Make a list of the clothing in your wardrobe.
Decide what you need most.
Plan and make a garment for yourself within a limited cost, and compare the cost with a ready-made garment.
Remodel a garment for yourself.
Learn how to care for your clothing by mending, brushing, pressing, etc.

References:

The Mode in Home and Dress: Dulcie Donovan (Allyn & Bacon, New York).

Your clothes and Personality: Mildred Graves Ryan (Appleton Century Co., New York).

PROBLEM VI.—How to save and spend wisely.

N.B.—This problem belongs also to Community Economics, and to Home Mechanics. It affords a good example to show the possibilities of integration.

Questions to indicate the scope of problem.

What is the amount of the family budget, and how is it apportioned?
What is the amount of my personal budget, and how do I spend it?
What necessaries must be provided?
What savings can be made in these budgets?
How can consumers learn the value of the things they buy, and know when they are getting the worth for their money?
What can I do at home to help save money?

Brief outline.

Wise spending is spending for necessaries, and getting the full value of the money spent.
Wise saving is the putting by of a surplus after necessaries have been provided.

Pupil experiences.

Prepare a family budget and a personal budget.
Save for the family budget by helping with home duties, such as mowing the lawn, doing the ironing, making simple repairs.

References:

Consumer Economics: Kennedy and Vaughn (Manual Arts Press, Peoria, Ill.).
Earning and Spending the Family Income: Mata Roman Friend.
Home Mechanics for Girls: J. C. Woodman (McCormack-Mathers Co., Wichita, Kansas).

PROBLEM VII.—How to develop interests for leisure time.

Questions to indicate scope of problem.

What obligations do leisure time bring?
How can I plan and carry out my work so that I can have some leisure time?
How can I spend my leisure time on things that are of most worth?

Brief outline.

Leisure time is time saved by the careful planning and organizing of our work.

Pupil experiences.

Make a plan for spending your own leisure time.
Have class discussion on better planning for use of leisure time.
Plan some form of recreation in which the whole family can take part.
Do some knitting, rug-making, etc.
Arrange flowers.

Arrange and carry out a plan for indoor planting.

Make a simple article for home or self, such as pot holder, silver case, table mats, ironing board cover.

Make scrap books or toys.

Make or play games.

References and Illustrative Material:

Home Decoration with Fabric and Thread: Ruth Wyeth Spears.

The Girl and Her Home: Trilling and Nicholas (Houghton Mifflin Co., New York).

Foods and Homemaking: Carlotta C. Greer.

PROBLEM VIII.—How to share in the work in the home.

Questions to indicate scope of problem.

What are the everyday activities which take place in my home?

What attitude should an intelligent girl have toward sharing home responsibilities?

Which of those activities listed are the responsibility of father, mother, and other members of the family?

In which activity do I share?

What else could I do about the house to relieve other members, and assume my fair share of family responsibility?

Brief outline.

Desirable attitude toward home responsibility: consideration for others, kindliness, willingness to share responsibility, cheerfulness, punctuality, reliability.

Suggested responsibilities: care of one's bedroom, bathroom, dishes, table setting, serving, entertaining; care of younger children, elderly members of household, etc.

Pupil experiences.

Keep a record of the way in which you spend your time for 24 hours.

From this record tabulate amount of time you spend on sharing home activities.

Discuss the record with your mother and work out a schedule that will help you perform your fair share of the home tasks.

As a home project, put such a schedule into practice for a specified time.

Keep a list of the things you are doing at home which will train you to take your mother's place, if she were ill or away on a visit.

References:

Home and Family: Jordan, Ziller & Brown (Macmillan, Toronto).

Fundamentals of Home Economics: Jensen, Jensen & Ziller (Macmillan, Toronto).

PROBLEM IX.—How can I contribute to social living in the home?

Questions to indicate scope of problem.

How can we contribute to entertainment in the home of (1) our family, (2) our friends?

How can we share our friends with other members of our family; e.g., our parents, grandparents, etc.

On a limited budget what forms of entertainment can be carried on in the home?

Brief outline.

Qualities that make for successful home living are cheerfulness, consideration for others, reliability, honesty, sincerity, kindliness, sympathy, friendliness, loyalty, recognition of private rights of individual members and of rights of the family as a whole.

Pupil experiences.

List various means of low-cost entertainment possible in the home.

Make and carry out plans for a family evening at home.

Share in the entertainment of friends in the home.

References:

Living With Others: Goodrich (American Book Co.).

The Girl and Her Home: Trilling & Nicholas (Houghton Mifflin Co., New York).

The Girl Today, the Woman Tomorrow: Hunter (Allyn & Bacon, N.Y.).

PROBLEM X.—How to understand and use desirable social customs.

Questions to indicate scope of problem.

What social customs should I recognize?

How can I become familiar with these social customs?

How can I make these customs a part of my daily living?

How can I make myself a welcome guest?

Brief outline.

Conduct at home, on the street, travelling, at the theatre, movies, concerts, in stores, etc.

Pupil experiences.

Learn how to receive guests.

Learn how to carry on a telephone conversation.

Plan and carry out some simple entertainment.

Have a party.

Plan and carry out a school reception, or other entertainment for the community by the whole school.

References:

Living With Others: Goodrich (American Book Co.).

Community Schools in Action: Clapp (Viking Press).

The Girl Today, the Woman Tomorrow: Hunter (Allyn & Bacon).

Fundamentals of Home Economics: Jensen, Jensen and Ziller (Macmillan Co.).

Cues for You: Mildred Graves Ryan (Appleton Century Co.).

PROBLEM XI.—How to assume responsibilities in school and community life.

Questions to indicate scope of problem.

What responsibilities can I share in my school?
How can I share in community activities?

Brief outline.

Co-operation in class and school activities.
Co-operation with community services; e.g., women's institute, local hospital, school fair, field day, baby clinic, community recreation.

Pupil experiences.

Do some work for the Red Cross or other social-service agency.
Make a survey of the health standards of the community.
Make a survey of the standards of home-making, of child care, of diet, in the community.
Plan a programme of recreation and social education for the community.
Arrange to attend a baby clinic.
Plan the improvements required in the school buildings in order that they may be used as the centre for community education and recreation.

References:

Planning the Community School: Englehardt and Engelhardt (American Book Co.).
Community Schools in Action: Clapp (Viking Press).
The Community School: Everett et al (Appleton-Century).
Youth Serves the Community: Hann (Appleton-Century).
Your Home and Family: Graves and Ott (Little Brown & Co., Boston).
A New First Course in Homemaking: Calvert (Turner E. Smith, Atlanta, Georgia).

REFERENCES FOR THE TEACHER

Integrated Homemaking: Herrington (Appleton-Century, New York).
Guide Book for above: Herrington (Appleton-Century, New York).
Fundamentals of Teaching Home Economics: Spafford (John Wiley & Sons, New York).
A Functional Program of Home Economics: Spafford (John Wiley & Sons, New York).

ADDITIONAL REFERENCES FOR PUPILS

General Books on Homemaking:

Advanced Course in Homemaking: Calvert and Smith (Turner E. Smith Co., Atlanta, Georgia).
Foods, Nutrition and Home Management Manual: Dept. of Education, Victoria, B.C.

Housewifery: Balderston (Lippincott, Chicago).
Housekeeping Work Book: Balderston (Lippincott, Chicago).
The Home Economics Omnibus: Harris & Huston (Little Brown & Co., Boston).
Elementary Home Economics: Mathews (Little Brown & Co., Boston).

Personality, Etiquette:

Behave Yourself: Allan & Briggs (Lippincott, Chicago).
Everyday Manners: Wilson.

Consumer Buying:

Better Buymanship Booklets: Household Finance Corporation (99 Michigan Ave, Chicago).
Consumer Goods: Reich & Zeigler (American Book Co., Chicago).
When You Buy: Trilling, Eberhart & Nicholas (Lippincott, Chicago).

Food and Nutrition:

Teaching Nutrition to Boys and Girls: Rose (Macmillan, Toronto).
Canadian Cook Book: Pattison (Ryerson Press, Toronto).

Home Nursing, Health, Child Care:

Home Nursing and Child Care: Turner Morgan & Collins (Heath & Co.).
Growing Up: Karl de Schweinitz (Macmillan, Toronto).

Clothing and Textiles:

From Thimble to Gown: Van Gilder (Allyn & Bacon, N.Y.).
Modern Clothing: Baxter & Latzke (Lippincott, Chicago).
Practical Sewing: Iverson (Ryerson Press, Toronto).
Fashion Book Manuals:
Vogue—*Book of Smart Dressmaking.*
McCall—*Sewing Manual.*
Simplicity—*Sewing Manual.*
Butterick—*Sewing Manual.*

Textiles:

Textile Fabrics: Dyer (Houghton Mifflin Co., Chicago).
A Guide to Textiles: Evans & McGowan (John Wiley & Sons, New York).

For Boys:

The Boy and His Daily Living: Burnham Jones & Redford (Lippincott, Chicago).

Magazines:

Practical Home Economics: Lakeside Publishing Co., 463 Fourth Avenue, New York).
Forecast: Forecast Publishing Co., 140 North 6th Street, Philadelphia, Pa.).

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